The Builder.

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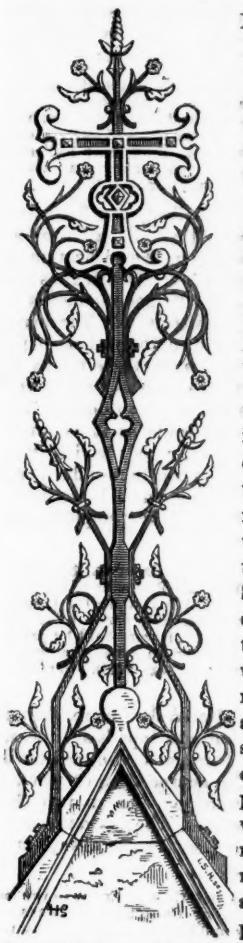
Mr. Fergusson's History. Ethnology of Art.



HE "History of the Modern Styles of Architecture," by Mr. Fergusson, is too important in the present condition of our art, to be left with the notice that we gave of it immediately on its publication, which notice however presented a sufficient indication of the general spirit of the work, along with the heads into which it is divided.* Though it would be easy to find in the book itself, sufficient testimony to our view that prospects are not so bad as the author would seem to regard them for the Anglo-Saxon race especially, expressions of opinion in the work deserve to be weighed, whilst the narrative of the course of architecture in the present and the three preceding centuries, had not previously been given with a like completeness; and indeed for many parts of the world, and for the really important period comprised in recollection of living men, it had been touched hardly at all. We might almost take credit to ourselves for pointing out in this journal, that there was such a field of architectural history as what is here referred to, and for urging that its study was essential to the adjustment of right measures for the future. This history Mr. Fergusson has presented in a manner which, if showing that upwards of 500 pages, and of 300 illustrations, do not go near to exhausting the subject, may be quoted as an example of how history should be written.

It has been held by some one, that history, as of states and governments, was all the better treated if under some of the leaning which is that of a partisan; and Mr. Fergusson of course felt that he had a purpose when he sat down to write. That purpose was to show by something more than assertion,—which has been made repeatedly of late, and with too little effect upon the public,—that copyism and the exhibition of learning are not architecture, and that "buildings which delight the scholars and archæologists of the day, but which the less educated classes can neither understand nor appreciate," will "lose their significance the moment the fashion which produced them has passed away." He considers that in the sixteenth century,—

> ... "men forsook the principles on which this and all other cognate arts had been practised from the beginning of time; they forsook common sense and common prudence, not in the hope of attaining greater convenience or greater effect, more easily, or with less means, but in order to reproduce certain associations with which education had made them familiar."

To the period of commencement, or which ultimately grew to the effort to reproduce, he confines the designation "Renaissance;" whilst he calls "Revival," any modern use, in fact or intention, of an old style.

Just as Cooking may be refined into Gastronomy, so may, he says, the "technic" or *useful* art, Building, be refined into the *fine* art, Architecture; and so long as that common-sense path was followed, progress was achieved. Architecture, "the æsthetic form of the purely Technic art of building," he regards as having nothing in common with Speaking, Writing, Painting, and Sculpture, "different modes in which men's thoughts can be communicated to other men, or perpetuated for the use of posterity;" and he considers that a really great change to which several causes conduced, was introduced into the practice of architecture at the time of the Reformation, namely, that "a Technic art came to be cultivated on the principles which belong only to one of the Phonetic class," subjecting art to the caprices and vagaries of intellect of the individual, instead of to the feeling of the age, and having the attendant "inconvenience that what a man learns in his life-time dies with him, and his successor has to begin at the beginning, and, following what may be a totally different track, their careers neither assist nor probably even cross each other." We have already in our former article, given expression to the view that the author's depreciation of the importance of individual influence is carried too far; we might have said something also about an apparent exaltation of the abilities of "men who could neither write nor draw," which might almost lead persons to think he would not be favourable to any education of architects; but we may say that the "inconvenience" which he speaks of, is one of the unfortunate circumstances in what we regard as the position of our art in this country, at the actual time. All the writing and talking, and machinery of societies, have succeeded in establishing a discursive and random firing at objects, but not an adequate system of registration and conservation of discoveries and acquired steps; whilst little of that cordiality exists between master and pupil, which was maintained elsewhere in some periods of art, which still is to be remarked in France, and which there is in the profession of civil engineering. Perceiving exceptions, however, we have hope of them.

But what else, we would ask, will be that future, hoped for even by Mr. Fergusson, but a combining of individual influence, and solidarity of the age, when all architects will be working within the same system or style, no matter which, though allowing scope to those individul efforts whereby have arisen the differences existing between works that are of the same age and locality? We shall have both, and we cannot spare either, of the sorts of influence: but, the truth is, they are not of the nature of things to be regarded as separate. Given the possibility of good architecture of the future; whatever the style or character be, is it not obvious that the art will be indebted in some slight degree to individuals,—for example, Pugin and Barry? Even a book may individually exert influence: and we are disposed to think in the face of the author of the one before us, that he himself will have helped to produce the very result. Moreover, we must not forget the *fact* of influence of individual architects in the early Classical and Mediæval periods. Greek architects have had their authorship recorded; and there are stories of the rivalry, as on the point of attaching a name to a work. William of Wykeham is almost as well known as Jones or Wren. But it seems to us scarcely possible to draw an accurate comparison between the circumstances of periods so different as were those which had and had not the advantage of printing to record the true facts.

There is in the volume, so much besides a narrative of the styles, so much in the form of observations to which the reader may respond, feeling that the matter was waiting to be said, and so much that arrests attention from its piquancy, if not correctness, that it is difficult to present a fair review of the work within ordinary limits. Designating the whole of the styles which preceded the Reformation as the "True Styles,"—those wherein we can reason with regard to buildings, "with the same certainty, and according to the same rules, which we apply when speaking of the works of Nature,"—and those, in whatever countries, subsequent to the same or a like epoch, as the "Copying" or "Imitative" Styles, wherein it would be "not too much to say that no perfectly truthful building has been erected in Europe," and the art has lost, besides intellectual value, all ethnographic signification, the author traces the chief features of ecclesiastical and secular architecture in Italy, Spain and Portugal, France, England, Germany; North-Western Europe, including Belgium, Holland, Denmark, Hamburgh, Sweden and Norway; India and Turkey, and some of the principal countries of North and South America. In the Introduction he recounts, and examines into, the proximate causes of the change that took place, as the revival of classical literature, the reformation in religion, and the development of the Italian school of painting. In the body of the work, further, he shows how such causes combining with circumstances of a people or locality, or operating after an interval of time, led to such varieties as the French and English forms of Renaissance and Revival. The division on Spain and Portugal, though written under difficulties which might be supposed, of gaining correct information, is a valuable portion of the work, giving not only information as to the succession of the three epochs which succeeded the Moorish and Gothic, the Plateresco, the Græco-Romano, and the Churrigueresque, but pointing attention to arrangements of plan, forms of steeples, effects of grouping, and many details which could be turned to account in modern English practice. In this and the other divisions of his work, he gives some attention to the subject of race as concerned in the varying intensity of the pursuit of art.

He sees, as others will if they attend to the subject, a remarkable difference between the Anglo-Saxon, Teutonic, Indo-Germanic or Aryan race, as he may choose to call our own, and the Celtic. He discovers in the race which has the work of colonizing and so peopling the globe, a temperament or an organization not favourable to the spread of art. He says in the Appendix, speaking of a possible success of the Aryan as result of education rather than feeling, and saying that such work fails to impress like real Art:—

> "This, probably, also is the true cause of the decline of architecture and other arts in Europe, and in the rest of the modern world. Wherever the Aryans appear, art flies before them; and where their influence extends, utilitarian practical common sense is assumed to be all that man should aim at. It may be so, but it is sad to think that beauty cannot be combined with sense."

The alliance of common sense and beauty, forming, however, as our author has shown, the art of architecture, and our branch of the race being not so much engrossed with the "true mission" of the Aryans, of pervading "the world with the useful and industrial arts," as to neglect poetry and painting, we have that expectation of an art, English and excellent, which Mr. Fergusson himself has, it seems to us, from time to time. No one can regard the particular fertility of taste which is French, and which, as we understand the theory of races, would be Celtic, without being struck with the fact that there are wanting to it just those "common-sense principles" which, by the aid of recent teaching and pursuits more than ever recognized and felt in England, this country could so easily offer in exchange for the element of art which it needs. In effect, there is in the horizon both for England and France, art that each country may grasp, if present relations continue, which will be the full denial to all such assertions as have been heard, that new and living art in architecture could never be seen again.

Notwithstanding that our author seems to underrate the imaginative element as exhibited in the *literature* of the Teutonic races, or not to observe that perfect art, like perfection in everything else, requires the special qualities of the Aryans, along with those of other races competent in imparting to it the essential of striking the attention at first sight, we recommend his Appendix, "Ethno-

* See p. 865, vol. xx.

logy from an Architectural Point of View," as one of the most interesting divisions of his book. We should be disposed to read it first. The author leaves indeed salient features of the difference as between the English and French in aptitude for art-work, unmentioned or unexplained. He alludes, however, to those differences which are observable in France itself; and we hope that he will pursue the interesting subject of the influence of race upon art, and be able to tell us why it is that there are the differences which strike the wonder of a traveller who studies the moving picture of human character, and which have their reflection in decorative form and colour, and that he will develope the field in what relates to savage races, and extend that which he has well commenced, the inquiry into the art-practice of civilized and colonizing nations under the new conditions which are presented by change of country and climate.

In the important division which we have mentioned, of Mr. Fergusson's work, after showing that archæology is of the same value to ethnology as palæontology is to geology, and putting aside all hypotheses of successive or simultaneous creations of mankind, he supposes that an original family, or tribe, in the highest state of civilization, and dwelling in the first seat of the human race, on becoming too large for resources of the country, sent off at successive periods, swarms or migrations, which hordes would degenerate, as there are innumerable proofs that man will, when exposed to want and misery, and that thus the world became divided amongst the Turanians, the Semites, the Celts, and the Aryans, the last being a Sanscrit-speaking race which went to India, and thence sent off the migration called Indo-Germanic.

The Turanians, supposed to have been at first hunters, would include the ancient Egyptians; the Chinese, ancient and modern, and the Japanese; the Mexicans, possibly; the Tamuls who once occupied all India; all tribes generally called Tartars, and all those now between India and China; the predecessors of the Semitic and Aryan races in Assyria; and amongst other races the Turks, who however, we may observe, are at present believers in one God, which characteristic Mr. Fergusson says is not generally Turanian. In Europe, are found the Magyars, Fins and Lapps, but overpowered by the more civilized Aryans; in Africa the Turanians have been almost as completely overpowered, by the Semites; whilst in America the same result has been produced by the Aryans.

The Semitic races, who were perhaps shepherds, migrated from the sources of the Tigris and Euphrates to the plains of Shinar, and reached Arabia, where now the tribes are nearly pure Semitic. The race included the Phœnicians and the Jews, and it is found in Africa; but the chief locality in which it developed itself was the country between the Tigris, the Mediterranean, and the Red Sea.

The next migrating horde, the Celts, who may be considered agriculturists, were not sufficiently distinct from the other races to have developed a form of nationality, polity, or religion, like the Semites. Mixing freely with those with whom they settled, they adopted manners and customs; yet they retained their principal characteristics. Their course was westward, to Europe, where they displaced the earlier Turanians. We first find them in Asia Minor. Thence, it is supposed, one portion of them passed by the northern coast of Africa to Gibraltar, and thence to Ireland. Another portion crossed the Bosphorus and ascended the Danube; and subsequently this branch was divided, part of those Celts entering Italy and getting to Rome, and the main portion going to Gaul and Belgium, and thence to Britain and Ireland. They are still going west.

The Aryan races having left their fatherland, crossed the Indus about 3101 B.C. More than a thousand years later they were penetrating to Ceylon. They gradually lost much of their purity of blood and faith; and in 300 B.C. they became Buddhists. Ten centuries after Christ, when the Moslems came to India, the religion of the earlier people, Turanians, had become supreme; and there was only a nominal thread of Aryanism showing the prior existence of a purer faith. They appeared in the western world in Greece, where by their union with the Turanian Pelasgi was formed the Greek civilization. In Rome they mixed with the Turanian Etruscans and the Celts. At last they reached Northern Europe, where they are at present. Whilst in India, they had sunk into the arms of a Turanian people; in Europe they found the country cleared of Turanians by the Celts. These last were improved by the mixture of new blood; but where the country was unoccupied, the Aryans have remained so pure that "they may perhaps regain something of the position they had temporarily abandoned, and something of that science which mankind only knew in their primeval seats."

Mr. Fergusson notes under separate sections of Religion, Government, Morals, Literature, Arts and Sciences, the characteristics which were those of the races. These features differed considerably; and those of architecture were variously affected by them.

The Turanians had no idea of a God external to the world: they worshipped trees, and a serpent, or a bull. From the reverence which they had for localities, pilgrimages originated. Government with Turanian races was a despotism. Having hieroglyphics rather than a regular alphabet, they had no poetry beyond lyrics, and have never advanced beyond the rudiments of a literature. The Chinese are in an advanced stage; but it appears that Mr. Fergusson does not regard them as having mastered even the elements of any scientific philosophy. The Semites have and always had, the distinguishing tenet of belief in one God. Their government was patriarchal. Having always had an alphabet, they possess one of the oldest literatures of the world, which with their creed has exerted influence over almost all the nations of the earth. Of the Celts our author writes, that in religion, none of the pure race "ever rose to a perfect conception of the unity of the Godhead," and that they have "a whole hierarchy of heavenly powers of various degrees, to whom the Celt turns with as confiding hope and as earnest prayer, as ever Turanian did to the Gods of his Pantheon;" that the Celt is the slave of a casteless priesthood; whilst that his temples are as splendid, and the formula of his ceremonials as unmeaning "as any that ever graced the banks of the Nile, or astonished the wanderer in the valleys of Thibet, or on the shores of the Eastern Ocean." As to Celtic government it is difficult to speak; the only form we know of is despotism, though not necessarily personal. The people are "too impatient to submit to the sacrifices and self-denial inherent in all attempts at self-government, and too excitable to be controlled, except by the will of the strongest, though it may also be the least scrupulous among them." A real aristocracy, and the restraints of caste, are impossible; "la carrière ouverte aux talens" is their boast; and the gratification of "individual ambition is consequently always preferred with them to the more sober benefit of the general advancement of the community." In morals, the Celts had lax ideas of the marriage-vow. "The ruling passion in the mind of the Celt is war," war not like that of the intolerant Semite, of extermination or of proselytism, but one "from pure 'gaieté de cœur' and love of glory. No Celt fears to die, if his death can gain fame, or add to the stock of his country's glory; nor in a private fight, does he fear death or care for pain, if he has had a chance of shooting through the heart, or at least wounding, his best friend at the same time." As to literature, nine-tenths of that of Europe which is lyric is of Celtic origin. "The Epos and the Drama may belong to the Aryan; but in the art of wedding music to immortal verse, and pouring forth a passionate utterance in few but beautiful words, the Celtic is only equalled by the Semitic race." The remainder of the literature is epigrammatic, but less sound and enduring than that of the Aryan.

The religion of the Aryans was the belief in one God, pervading everything that was made, in and beyond the universe. "A creed so etherial could not long remain the faith of the multitude, and we early find fire,—the most etherial of the elements,—looked to as an emblem of the Deity." But fire, with the earth and the heavens, were "reverenced because they were visible manifestations of a Being too abstract for an ordinary mind to grasp. Below this the Aryans never seem to have sunk." No temple or human ceremonial could be wanted with such a faith. "The most marked characteristic of the Aryans," says our author under another division of his subject, "is their innate passion for self-government." "The village system" which they "introduced into India is still the most remarkable of its institutions." Caste is another feature in these races. Where it is a living institution, our author speaks of it "as perhaps more conducive to the proper regulation of society than any with which we are acquainted." In the ratio in which a people is Aryan, they possess an aristocracy and municipal institutions, and are prepared to respect the gradations in society, and to sacrifice individual ambition. In literature, the possession of an alphabet more perfect than that of the Semitic races, and the structure of their language, enabled the Aryans to assume a position which the other races never attained to. History was not a mere record of dates; their poetry tended more to the didactic than the lyric; the Epos first rose to eminence, and the drama was elevated above a mere spectacle. When the blood of the Aryan has been mixed with that of other races, a literature eminently imaginative and poetic has been produced; but in proportion to their purity has been the tendency towards a more prosaic style. He says:—

"The aim of the race has always been the attainment of practical common sense, and the possession of this quality is their pride and boast, and justly so; but it is unfortunately antagonistic to the existence of an imaginative literature, and we must look to them more for eminence in works on history and philosophy than those which require imagination or creative power."

Of the four races thus described, the Turanian and the Celtic are regarded as all that are innately imbued with what brings the realization of great works of architectural art. Deficient as the first of these races was in the "phonetic modes of literary expression," as architects the Turanians were "unsurpassed,"—as shown, the author would seem to say, by the *dimensions* of their works in Egypt, Southern India, China, and Mexico, as well as by a degree of taste and skill, considering the civilization, which is remarkable as it is unexpected. In consequence of their gods having been kings, and being supposed to continue influencing destiny, temples were palaces on a large scale. More sacred however than their temples were the tombs.

"Wherever a Turanian race exists or existed, there their tombs remain; and from the Pyramids of Egypt to the mausoleum of Hyder Ali, the last Tartar king in India, they form the most remarkable series of monuments the world possesses; and all were built by people of Turanian race. No Semite and no Aryan ever built a tomb that could last a century, or was worthy to remain so long."

The Buddhist reform altered the funereal tumulus into a relic shrine; but the tope is still essentially a tomb. The Turanians also possessed, combined with wonderful appreciation of form, a passion for coloured decoration and an intuitive feeling for harmony of colours. They used throughout, the primitive colours, so as to be always brilliant, but never vulgar.

"From the first dawn of painting in Egypt to the last sign-board in Constantinople or Canton, it is always the same—the same brilliancy and harmony produced by the simplest means."

In sculpture, and indeed in painting regarded as the higher art, they were not so fortunate. Not having a literature, they felt obliged to attempt to make their sculpture express more than sculpture can. For the same reason the picture was to be all in all. But is the author sure the Egyptians had no literature? The story, in the picture, is told, he continues, with clearness that charms; its greatness however is less intellectual than the utterances of the other divisions of the human family.

There is this peculiarity about the Turanian arts, that they are instinctive rather than intellectual, and as shown by the works in Egypt and China, are incapable of "that progress which distinguishes most of the works of man."

The Turanians were to some extent astronomers; and in artificial irrigation they have always been singularly expert.

"Wherever you follow their traces, the existence of a tunnel is almost as certain an indication of their pre-existence as that of a tomb. It is amusing, as it is instructive, to see at this hour an Arab pasha breaking down in his attempts to restore the irrigation works of the old Pharaohs, or an English engineer officer blundering in his endeavours to copy the works instinctively performed by a Mogul, or a Spaniard trying to drain the lakes in Mexico."

Building and irrigation were "the special instincts" of the Turanians; and the perfection attained therein is the more singular, from contrast with what they did not do in other branches of art or science.

The Semitic races, Mr. Fergusson says, never erected a building worthy of the name. His assertion that "neither at Jerusalem, nor at Tyre or Sidon, nor at Carthage, is there any vestige of Semitic architectural art," and that the works never existed, however, requires some explanation. If he means that the numerous works of imitative art, *quasi* Egyptian, Greek, or Roman, that Mr. Franks has suggested to him may be Phœnician, are not true art,—that the Semitic races were in fact copyists,—we can understand him; though there is a particular character of masonry (*en bossage*) that is Phœnician, and that has been regarded as the original of *rustication*. As to Phœnician remains in general, we noticed in a recent volume the

researches, at Sidon, of M. Renan, for the French Government, and described the sarcophagus in the Louvre discovered at a previous date; and perhaps we may be tempted to return to the subject, for the sake of seeing what was discovered at Tyre, Jerusalem, and other places. We do not quite understand the remark, that Solomon had recourse to *Turanian* people to build his temple; for, Hiram was a Phœnician; and the Phœnicians, no less than the Jews, our author says, were Semitic. As we pointed out in our notice of the French researches, they deserve the attention of writers of Mr. Fergusson's calibre: we greatly suspect that though the bulk of the Phœnician art was imitative, there was something more, and that the whole of the works have more importance in the history of architecture, the art, than has been perceived. Taking the Semitic art, however, as all imitative of other art, we should instance it along with Egyptian works of the Ptolemies, as tending to controvert the notion,—though, may be, it is not that of our author,—that such unoriginal art is peculiar to the last three centuries.

The architecture in Assyria, of palaces of dynasties more or less Semitic, our author believes was unimportant prior to the time of Sennacherib, when the art was derived from the Egyptians. During the domination of the Romans, the temples of Baalbec and Palmyra were erected "without one trace of Semitic feeling or Semitic taste;" but they are beside the question, as being Roman works. Whatever there might be of architecture about the Jewish tombs, our author shows was subsequent in date to the Babylonish captivity or the Roman influence; neither the Turanian idolatry, nor any special reverence for the dead, being consistent with the Jewish feelings and religion. Painting and sculpture were forbidden. Music was the one æsthetic art of the Semitic races.

"The true glory of the Celt in Europe," says Mr. Fergusson, "is his artistic eminence."

"It is perhaps not too much to assert that without this intervention we should not have possessed in modern times a church worthy of admiration, or a picture or a statue we could look at without shame.

In their arts, too,—either from their higher status, or from their admixture with Aryans,—we escape the instinctive fixity which makes the arts of the pure Turanian as unprogressive as the works of birds or of beavers. Restless intellectural progress characterizes everything they perform; and had their arts not been nipped in the bud by circumstances over which they had no control, we might have seen something that would have shamed even Greece, and wholly eclipsed the arts of Rome."

Without the instinctive knowledge of colour of the Turanian, and without having been able to give to music that intellectual culture elaborated by the Aryans, the Celts are far better musicians than the former, and far better colourists than the last-named races. But,—

. . . "in modern Europe, Architecture is practically their own. Where their influence was strongest, there architecture was most perfect; as they died out, or as the Aryan influence prevailed, the art first languished, and then died."

Temples were required by their "quasi-Turanian theology," almost as grand as those of the Copts or Tamuls; whilst even more remarkable were their tombs, which were such as a Turanian might have envied, not for size, but for art; and "even now" they can "adorn their cemeteries with monuments which are not ridiculous." The Celts are mixed with other races; but it is thought that,—

. . . "where no Celtic blood existed there no real art is found; though it is perhaps equally true to assert that not only Architecture, but Painting and Sculpture have been patronized, and have flourished in the exact ratio in which Celtic blood is found prevailing in any people in Europe; and have died out as Aryan influence prevails, in spite of their methodical efforts to indoctrinate themselves with what must be the spontaneous impulse of genius, if it is to be of any value."

In the future of science, "it is doubtful whether the deductive brilliancy of the Celtic mind can avail anything against the inductive sobriety of the Aryan."

As to the Aryans, we understand our author to say, their practical common-sense aim is antagonistic to imaginative literature, and is more than doubly so to the Fine Arts. We have already suggested that there may be some difference of opinion on this point. Our feeling is that the assertion is not accordant with what is elsewhere said of what goes to form good architecture. We must also dissent from a following *dictum*, put forward as an explanation of another assertion, that a people possessing great "power of phonetic utterance," never could look upon picture or statue as more than subsidiary illustration of written text. A painting may represent what took place at one moment of time; but also, it can show what it is scarcely possible for the best written description to afford. Architects know this; or there is no need of plans and working-drawings. With architecture, the case of the Aryan is so bad, Mr. Fergusson says, that "had there been no Pelasgi in Greece, there probably would have been no architecture of the Grecian period." Convenience is the first thing which the Aryan seeks, and by the readiest means, and "why should he do more?" If out of emulation he is induced to ornament, he is willing to copy what has proved successful, to spend money, and to submit to some inconvenience; but "in his heart he thinks it useless, and he neither will waste his time in thinking on the subject, nor apply those energies of his mind to its elaboration, without which nothing great or good was ever done in Art." As to faith in ceremonial worship, he,—

. . . "can never be brought to understand that prayer is either more sincere or more acceptable in one form of house than in any other. He does not feel that virtue can be increased or vice exterminated by the number of bricks or stones that may be heaped on one another, or the form in which they may be placed; nor will his conception of the Deity admit of supposing that He can be propitiated by palaces or halls erected in honour of Him, or that a building in the Middle Pointed Gothic is more acceptable than one in the Classic or any other style."

The want of faith "may be reasonable," our author adds, "but it is fatal to poetry in art."

Moreover, the Aryan is deficient in appreciation of colours; though, even savage races cannot go wrong in this respect. As before noted, if the Aryan be exceptionally successful in art, education, not feeling, is, according to Mr. Fergusson, the cause. The ancient Aryans, in marked contrast with the Turanians, never erected a building in India; and we do not know what their style was or is.

Though wherever *such* "Aryans" appear, it may be that "Art flies before them," and "utilitarian practical common sense is assumed to be all that man should aim at," *we* do not think "that beauty cannot be combined with sense." We have no belief that it is necessarily uncombinable. Our poetic literature, appreciated by all who understand our language, would show otherwise. Even if the task be hard to the Aryan race, is it so to the "true-born Englishman," Celt, Roman, Teuton, Dane, Norman, and French? That product of this mingled blood is not a "sober, reasoning, unimaginative and unartistic people," like "the Aryans of the Vedas or of Tacitus." The "literature eminently imaginative and poetic," that has come of the mixture of races, discloses the existence of a fund of originative power which, hitherto manifested in a rythmic medium, whilst equally a prime mover in those arts with which the "Aryan" is "pervading the world," is of the nature to grasp the beautiful as the useful, and will probably permit of, and conduce to, the art architecture, the more that the Aryan can appreciate "the beauty of scientific truth."

NEW MATERIALS FOR THE LIFE OF SIR FRANCIS CHANTREY.

THE two greatest bust sculptors England has produced have each had their Lives or Recollections of their Lives written by one of their executors. The story of Joseph Nollekens is told by "an ungentle executor," John Thomas Smith, and he has carried into every page of it the resentment of great expectations, not deferred alone, but entirely disappointed. The story of Francis Chantrey has been written (or attempted to be written) by George Jones, esq., R.A., a very gentle and in no way disappointed executor. The parallel between Mr. Smith and Mr. Jones may be soon summed up: Smith is all scandal, Jones all panegyric. Smith finds vinegar and gall from his legacy of one hundred pounds, Jones honey and fine words from his legacy of two thousand pounds.

It is much to be regretted, many have been heard to remark, that the author of the Lives of the most Eminent British sculptors did not survive to write the life of one of the greatest of our sculptors. Allan Cunningham should have been spared to write the Life of Francis Chantrey. He was not. Nor do I believe that he would have written it. Why? it will be asked. He who knew so much of the man—was in his service, and with him daily for the last thirty years of his life, and a practised writer of Lives! Why not? Was there aught to conceal in Chantrey's career? aught to varnish? I believe not. Did the man know too much of the master? or did he care too little about him? That my father would *not* have written the Life of Chantrey I have heard him more than once declare. There were many to please, and some to offend:—

"Last night her lord was all that's good and great,
A knave this morning, and his will a cheat:"

for thus by turns lamented and roared Sarah Jennings, Duchess of Marlborough, wife of John Churchill, the great Duke of Marlborough. Little spiteful wasp of Twickenham, you stung the heart of your Atossa, of all time, in that condensed and withering couplet.

In the church of Walton-upon-Thames (where Roubiliac's fine monument of Boyle, Viscount Shannon, is enshrined), is a figure by Chantrey of a female weeping, erected in memory of Christopher D'Oyly, esq., barrister, who died in 1795, and his widow, Sarah, grand-daughter of Sir Hans Sloane, who died in 1821, in the ninety-seventh year of her age. This Mrs. D'Oyly lived, when in London, at No. 24, Curzon-street, May-fair: she was nurtured in good style in her youth, saw company to the last, and died rich. In her will she remembered a Mr. Daniel Wale, an old and faithful servant. Mr. Wale had a daughter, Mary, calling Chantrey cousin, and to this cousin, with her little portion, our young and struggling sculptor was married, in 1809, in the church of Twickenham-upon-Thames.

My father was fond of relating two anecdotes of Chantrey, when young and unknown, that materially helped the young sculptor on the road to fame. They relate to two very peculiar characters,—Nollekens, the sculptor, and Lord Mayor Sir William Curtis. When, in 1811, Chantrey sent his bust of Horne Tooke to Somerset House, Nollekens viewed it earnestly, lifted it from the floor, set it before him, moved his head to and fro, and having satisfied himself of its excellence, turned round to those who were arranging the works for exhibition, and said, "There's a fine, a very fine *busto*; let the man who made it be known—remove one of my busts, and put this in its place, for it well deserves it."

The other relates to the same year, when he became the successful candidate for the Guildhall statue of King George III. When the design was approved, and his name made known, it was objected that he was a painter, not a sculptor. "You hear this, young man," said Sir William, with a turtle and champagne accent, "what say you—are you a painter or a sculptor?" "I *live* by sculpture," was the reply; and, short and Chantrey like, it was enough. London thus obtained a fine statue at once easy, characteristic, and dignified.

Chantrey, some five years later, modelled a bust of Curtis. He has caught the man,—shrewd, humorous, voluptuous, liberal, and yet mean,—the lips redolent (though in marble) of turtle and discount.

Chantrey was a poor correspondent, though his letters in the way of business are numerous enough and to the point. His longest letter to my father is from Italy. The readers of the *Builder* will like to hear what so keen a reader of mankind, and so quick an observer of nature, has to say. He was travelling with Jackson, the celebrated portrait painter:—

To Allan Cunningham, Esq.

"Rome, 18th October, 1819.

"Dear Sir,—Our journey hitherto has been very pleasant and very fortunate. We ran through France with all possible haste. We passed the Simplon in eleven hours. The road is in every part 21 feet wide, and equal to the best of our English roads. It is *perfectly safe*, though for many miles it is cut in the sides of almost perpendicular rocks of granite, at a fearful height from the bottom. Milan was the first place that presented anything important in art. Verona and Padua are interesting, but to me unimportant. The first contains the most perfect amphitheatre in Italy, and the latter much of Palladio's architecture. Venice was the place that first excited my surprise and raised my admiration. It abounds with the very finest works of art,—works, unfortunately, in fresco. Bologna and Florence, also, contain endless treasures; but Rome, above all, is the most important. My mind is so confused with the rapid succession of interesting objects, that I am not yet sufficiently settled to take advantage of anything. Canova is the great modern master here, and deservedly so. He is excelling in simplicity and grace every day.

F. CHANTREY."

In my paper upon Soane,* I gave a characteristic note from Chantrey to the original Paul Pry. A *notelet* or two from Chantrey to his

* See *Builder*, p. 743, vol. xx.

"friend and assistant," will be found equally characteristic:—

To Mr. Cunningham.

"Westminster Abbey, 3 o'clock.

Examine the bearer, Affleck. If you think him in a state fit to serve me, keep him; if not, discharge him. F. CHANTREY."

Affleck was a Dumfries mason, who found his way to Pimlico, and obtained employment under Chantrey through Allan's influence. He was an able mason, but

"Fonder of purl and skittle-grounds than *work*,"

took kindlier to the neighbouring "Crown and Anchor" than he did to the mason's banker. My father looked at Affleck, turned and looked, hinted regret at what he saw, and had seen, and sheltered before; paid him his wages (with something for his own pocket at the same time), and dismissed him. Affleck—I remember him well—never again served Francis Chantrey. He had a touch or two of pawky Scottish humour about him, not unwelcome to my father.

A second *notelet* is additionally valuable for its answer. It is brief and to the point:—

To Mr. Cunningham.

"Holkham, Monday.

Dear Sir,—D—n John for sending me away without my telescope, and find Foster's letter.

F. C."

At the bottom of this my father has written "Copy of Answer:"—

To Francis Chantrey, esq.

"Belgrave-place, Tuesday.

Dear Sir,—I've d—d John, and found Foster's letter. A. C."

John was Chantrey's butler, and a very good fellow and excellent servant, but John "unhappily thought fit" (dear Mat. Prior) to publish his love of drink to the bulk of Chantrey's visitors. Old Mr. Robinson, who had been Sir Joshua's fishmonger, and was then Chantrey's neighbour (a kindlier hearted man I never met with), called to inquire for Chantrey, who had been unwell. John was in his cups when he answered the door. "Who! who! shall I say—I say—called?" hiccupped John, full in the face of the retired fishmonger. "Mr. Robinson," was the reply. "What!" said John, effervescing with real drink and imaginary delight, "what!" (peering closer into his eyes), "what, old Robinson Crusoe. Give us your hand. How's Friday?" and H. Robinson, esq., of 14, Upper Belgrave-place, Pimlico, "fishmonger," not of "York, mariner," had a grip from John the butler that brought tears of laughter and pain into the eyes of the old gentleman. My father dearly loved to relate this story; Chantrey was delighted with it; Robinson himself told it my father, rather seriously at first, but very good-humouredly withal. "He that is drunk is as great as a king," as the Alderman of London hiccupped at Guildhall to that merry monarch King Charles II.

"Who has e'er been to Paris,"—no, to Holkham, in Norfolk, must have seen and will remember the *two* woodcocks cut with so much delicacy in marble by our great sculptor. Chantrey, proud of his achievement (he had killed at Holkham two woodcocks at one shot in what is called a shy season), commemorated the event in marble. The following verses record the circumstance:—

"The snowy hills of Norway bred us,
The silver springs of Holkham fed us:
A sculptor, as we wing'd our way,
Held out his gun and made us clay;
But, sorrowing for us as we fell,
To marble turn'd us by a spell.
Princes and peers flocked in a bevy,
And said, 'How glorious done in gravy!'
Geologists* looked marvelling on,
But feeling cried, 'By God, a stone'
How blest our fate o'er men and mice,
Heaven made us once, and Chantrey twice!"

These verses, I may now announce, were written, that is, thrown off "at a heat," by Allan Cunningham.

Of the man Chantrey I wrote (anonymously) the following description soon after his death. When I add that it contains a few touches by my father, it will be liked all the better:—

"Sir Francis Chantrey was about 5 feet 7 inches high, of a stout make, and one of the most active and vigorous men of his time, but latterly inclined to corpulency. His head and face were very fine, his mouth exquisitely chiselled,—Lord Byron's not finer nor more expressive. His eyes round and lustrous,—one useless for vision, but in no way apparently different from its fellow. He had been bald from an early age. His voice was agreeable, his conversation humorous and sarcastic by turns, and always animated. He had mixed much with the world, and, unlike the Hermit of Parnell, knew it better by experience than by books. He had been much of a reader in his youth, and had that happy and rare art of learning from conversation what others seek and acquire in books and silent study. His knowledge was, therefore, very general, and there was scarce a topic at table but what he could speak, and very ably, upon. His reputation, his manner, and matter, always commanded attention. Then how delightful were his dinner parties, not for the viands only, though they were always of the choicest description, but for his own sake; for he talked much, and made a stranger's diffidence rub off by touching on subjects he knew would be agreeable to him. Then, too, his conversation was not addressed to one or two on his immediate right or left, but was aimed at the whole company. Dr. Johnson would have loved his table, and would have been reminded of the dinners he enjoyed so much at Sir Joshua's and Allan Ramsay's."

I have something more to say of the great sculptor. PETER CUNNINGHAM.

* Chantrey's great friends, Professors Buckland and Sedgwick.

AMERICAN HOTELS.

"THE LINDEL," OF ST. LOUIS.

THE following more precise account of one of the large hotels in America, to which we briefly referred lately, will be read with interest:—

During my visit to London I have seen in the *Builder* a notice of a new hotel at St. Louis, of which I was the architect and superintendent. Believing you anxious to lay before your readers all the building news both of the Old and New Worlds, a detailed description of it may prove interesting, from the fact of its being the largest and said to be the most complete either in Europe or America.

Before giving the details of its construction, a brief comparison with some of the other extensive hotels of the United States will show its magnitude. For the last twenty years the Astor House of New York, a plain but substantial building of grey granite, costing 360,000 dollars, has been *the* hotel, when size alone was taken into account. The St. Charles, at New Orleans; the "Virginia" and "Planters," of St. Louis; and the "Burnet," at Cincinnati—the latter containing some 260 rooms, and being in some respects the queen of hotels—have for fifteen or more years been among the larger hotels of the union. For the last ten years these have been excelled in the north-west by the Tremont of Chicago, which in its turn is being eclipsed by the new Sherman of the same city; which is 181 feet in front by 120 feet deep, and has six stories in front and seven in the rear, over side walk; its cost being over 400,000 dollars. There have been many excellent houses of larger capacity, and fine specimens of architectural taste, but of less pretensions, as the New-hall at Milwaukee, the Gayosa at Memphis, the Richmond at Chicago, Barnum's in Baltimore and in St. Louis, &c. The large Metropolitan of New York overtopped the Astor; and the St. Nicholas and Fifth Avenue, of later date, surpassed this in dimensions and modern improvements. These again were all cast in the shade by the magnificent Continental of Philadelphia, which, until the Lindel of St. Louis was erected, was certainly not excelled in America. The Continental is six stories in height, exclusive of basement, and presents a front of 235 feet by a depth of 194 feet. Its grand dining-room is 90 feet by 47 feet; its tea-room, 65 feet by 36 feet. Its capacity is for 800 to 900 guests.

But extensive as is the Continental, the Lindel largely excels it, being seven stories high exclusive of basement. Its height from side walk to top of eave cornice is 112 feet: its south front is 272 feet; its depth, 227 feet. The east and south fronts are faced with cream-coloured magnesian limestone, elaborately finished. The north and west fronts are faced with the finest stock brick, with cut stone ornamental window trimmings. The two dining-rooms (with carving-room between), easily thrown together for dancing or other purposes, are 233 feet in length by 45 feet in width, evidently the largest in the world: that part used as the gentlemen's ordinary is alone 128 feet long by 45 feet. On the same floor, and contiguous, is a kitchen 60 feet by 46 feet, and 20 feet high.

This hotel can accommodate with ease 1,200 persons. Some idea may be formed of its great extent by a few statistics of materials used in its construction. The brick laid in the walls would be sufficient to pave an area of more than 38 acres. This is in addition to 8,000 perches of rubble masonry in the foundations, 35,000 cubic feet of cut stone in the fronts, 740 tons of cast and wrought iron, 27 acres of plastering, 810 windows, 650 inside doors, 3,240 lb. of copper for gutters: the plate glass in the building would cover an acre of ground, the floors seven acres: the skirtings, or washboards, laid in a continuous line, would reach thirteen miles; and if a boarder desires to take a walk through the wide and lofty corridors before breakfast, he may travel one mile and a quarter without going over the same floor twice. Besides the marble flooring and other flagging, 300,000 feet of flooring boards have been laid, and it will require 30,000 yards of carpet to cover them. Thirty-two tons of sash-weights are used, 16,000 feet of gas-pipe (with many thousand burners), 120,000 lb. of lead, and 30,000 of iron pipe to supply it with water, besides 37,700 feet of steam pipe for heating it. Thirty-two miles of bell wire were required, and three water-tanks containing 30,000 gallons of water rest upon its roof. The actual cost of the building is 950,000 dollars, which, with the ground, valued at 326,400 dollars, makes the whole value 1,276,400 dollars, without the furniture. There are 525 bed-rooms, 19 parlours and club-rooms, and 36 shops and basements.

Style of Architecture and Plan.

The design is Italian, of the Venetian school, and the building is substantial in the extreme, being built with brick, stone, and iron. The hotel consists of two parallel buildings, extending east and west the length of the whole front, with a space of 45 feet between them, and connected only in the centre, and both extremes, by wing buildings running north and south, and leaving between them two courts, one of which is used for a gentlemen's recreation, and the other for a ladies' conservatory. While the centre connecting building, and the eastern flank extend to the full depth of the lot, the space that would be occupied by the western flank has been reserved for the erection of a theatre, to connect with the building. The principal or southern front is divided into five compartments, on its base line, the centre and both extreme divisions forming projections, and the two receding divisions forming on the first and second stories colonnades between them, thereby producing a very pleasing effect. The three principal elevations on the ground-floor are supported by columns, imposts, and arches, the shafts having every alternate course lightly vermiculated, and forming a continuous arcade around the three fronts, imparting strength to the building, and obtaining sufficient light for the shops and basements: the pedestals of these columns extend down to the basement floor, and are supported by inverted arches: the elevations are sufficiently marked by continuous cornices and string courses, dividing each story, together with the variety of pitched and compassed pediments, columns, pilasters, and trusses, around the windows, and its handsome crowning entablature.

The basement extends under the entire building, courts, and side walks, and is arranged in the following manner:—The laundry has five rooms for washing, drying, mangling, ironing, and general linen room: the latter connects with steam elevators, with the distributing-rooms on each story. The baker and pastrycook have each two rooms, and two ovens, with a general flour-room between them. The butcher and fishmonger have one large room each, with refrigerators: the grocer and greengrocer have one room each: the wine-cellars are six in number, and convenient to the ice-vaults. The coal-vaults are six in number, and connect with a steam elevator: the ash-vaults are spacious, and are the termini for all the ash-flues of the building. The steam-boilers and engine-rooms are outside the building: the latter is so situate that the shafting passes directly through the laundry. There are also two well-lighted and ventilated dining-rooms for the servants of the house and those of the guests, and a large saloon 93 feet by 64 feet, under the office and vestibule, with outside and inside entrances, to be used as a general bath-room, handsomely fitted up.

The drainage is very complete, and all the water from the inside and outside of the building passes through glazed earthenware pipes, having all the hot and cold water connexions near the extreme end from the main sewer, so as to insure a continuous current, together with all the surplus steam and hot water from the boilers passing into them, and preventing them from freezing in winter. The force-pumps can also be applied for washing them out when required. The conducting flues for the offal and waste water terminate over the traps on iron gratings, allowing the

fluids to escape while the solids remain to be removed through outlets inclosed by iron doors. A railway is constructed through the main passages for the conveyance of supplies to and from the different apartments, each of which is well ventilated and fitted up to suit the various purposes.

There are four principal entrances to the building besides a carriage entrance. The principal or grand entrance is on the south front, and is covered by a very elaborate two-storied portico, with a projection of 8 feet. The vestibule of this entrance is 93 feet by 64 feet wide, and has a variegated marble floor, with inside columns supporting enriched arches and cornices, and having the walls and ceiling decorated by fresco painting. The ladies' carriage entrance is on the east side, and is so arranged that guests can alight under cover, the carriage then being driven through the hotel, and leaves by the north side. In the courts in the eastern and western parts of the ground-floor are separate colonnades for ladies and gentlemen, fitted up with fountains, evergreens, &c. Also on this floor is the richly-decorated saloon, 60 feet by 46 feet; billiard-room 62 feet by 42 feet; public and private offices, freight-room, coat and wash rooms, waterclosets, and a large fire-proof vault. The walls and ceilings of these rooms are painted and panelled, and the halls, billiard and refreshment saloons highly decorated by frescoes.

There are no columns in any of the large rooms in the building, the floors being supported by wrought-iron boxed girders, 48 feet long, 30 inches deep, and 9 inches wide, with 7-inch joists, and brick arches between them. Encircling the public offices and these four entrances are the thirty-six shops, communicating with the interior of the house, with a walk or platform all around the rear doors, and designed to suit the requirements and convenience of its guests. On the first floor also, to the right and left of the main entrance, are two grand staircases, commencing in the basement and running up the entire height of the building. The steps are each 12 feet long, and the walls wainscotted with black walnut, handsomely panelled and moulded, having gorgeous mirrors on the landings.

The first story contains the ladies' public and private parlours, reading and writing room, anterooms, receptions, &c.; also gentlemen's public and private parlours, writing and conversation rooms, club and reading rooms; all spacious, lofty, and finished magnificently. The latter, in the centre of the building, is surmounted by a large stained-glass skylight, and separated from the courts on either side by glass partitions. The gentlemen's public reception-room is in front over the main entrance, and is 35 feet by 25 feet. The gentlemen's, ladies', and children's dining-rooms are on this floor, and the carving-room located between the ladies' and gentlemen's, and are all wainscotted in the richest manner, with frescoed walls and ceilings, which are filled with allegorical representations, and the walls to the height of 13 feet between the windows are empanelled with gorgeous mirrors. These mirrors are all supported by appropriate statuary. Attached to the carving-room is a large fireproof vault for silver ware, and commodious china and delf closets, steam plate-warmers, tables, &c.

Behind and attached to these dining-rooms on the same floor, but running back northwardly, is the culinary department, including all their attendant and multifarious requirements. The kitchen, 60 feet by 46 feet, and 20 feet high, is one of the best lighted and largest in the United States, and is entirely fire-proof, with a stone floor. The apartments for roasting, broiling, frying, stewing, boiling of meats and vegetables, &c., are in the centre, allowing passages all around them. A hood covers the whole, of sheet-iron, which terminates with a large flue, to carry off all smoke and effluvia from cooking into the main shaft from the steam-boilers. And yet with all these rooms, there is a fine promenade on this floor, between the parlours and reading-rooms.

The second, third, fourth, fifth, and sixth stories are divided into bedrooms and suites of rooms for families, containing two to six rooms as desired. The house is not cut up into small apartments, like some, though there are 525 bedrooms in the hotel (and not a dark one among them), ranging in size from 13 by 16 feet, to 31 by 25 feet, connected by spacious corridors 12 feet wide, by 16 to 20 feet high. These corridors, straight, and extending almost as far as the eye can reach, with triple windows (nearly the width of the halls) at their extremities, give good ventilation; aided by twenty patent ventilators through the roof.

The whole of the large rooms and halls are warmed by hot water and steam; also fire-places and gas throughout the entire building; each room in the hotel having a white marble mantel-piece, and the floors of the first and second story corridors, and of the bar, billiard-room, and office being flagged with black and white American marble. These are in addition to the marble wash-basins, toilet-stands, &c. Besides the quantity of lead and iron pipe in the building, there are six main lead pipes 3 inches in diameter. The water-closets will number 175. In fourteen sets of rooms are baths of planished copper, with silver-plated furniture, equal to any in the first-class dwelling-houses; wash-basins with handsome counter-sunk marble tops, highly finished; and each of these, with 96 other wash-stands, furnished with a constant supply of hot and cold water for every guest. All the water is filtered through Rice's patent filterers.

As protection against fire, there are, in various parts of the house (four in each story) twenty-six openings or fire-plugs, with three coils of hose-pipe. All these conveniences are fed with water from three large tanks on the top of the building; the water of which is forced there by the engine of the house. The pumps being connected with the city reservoir, can all the time force water over the building.

The telegraph, bells, and speaking tubes, will communicate from the office (which is in the vestibule of the principal entrance) to all parts of the house.

The building is heated by coils of pipe, 1 inch and 1½ inch in diameter, each coil being inclosed by very handsomely-perforated brass screens, and placed under the windows, forming the panelled backs, with reflectors behind them; under the tables having marble or mosaic tops, in the floors of the halls, and the panels of the pilasters.

All the hot and cold water supplies are from the tanks under the roof of the building, and the pipes for both hot and cold are inclosed in wooden boxes, flush with the walls, and placed behind the base of the rooms, making them easy of access; while the hot water keeps the cold from freezing in the winter season, the steam from the boilers heats the water in the tank, and the hot water, after circulating through the pipes, returns to the boilers.

In conclusion, I will add that nothing has been omitted which might contribute to the comfort of the guests, and the successful working of the house. Having a choice of four fronts, the south was selected, for the reason that the summer winds blow chiefly from that quarter, and, circulating through the building, carry away all effluvia from the kitchen and objectionable parts of the building, which are placed most northwardly. The office, being placed at the extreme end of the vestibule, and between the two courts, commands a full view of all the entrances. The chief steward, from his position in the principal carving-room, has also a full view of all persons in the dining-room, as well as his little army of waiters, and has all supplies under his immediate control. In case of an alarm of fire, the inmates would not only have the advantage of seven large staircases, passenger and other elevators, and five entrances, but also the shops, which connect with the interior of the building, by which to escape.

THOMAS WALSH.

LONDON BELLS.

IT is curious to note the number of bells that on Sundays and Saints' days summon the multitude to the various places of worship; that on high days and holidays clang from the steeples; and, as hour after hour slips by, chime the note of departing time. There are also bells connected with railway stations, hospitals, almshouses, and manufactories, which mingle their tones in the great voice of London. In the old time, before the population had become so dense as it is and the traffic so immense, the city bells must have tolled with far greater effect than they do at present, when, owing to the din, it is seldom that the great bell of St. Paul's can be heard in either Cheapside or Fleet-street. If the bells of Bow were ringing a full peal, they would not, during the busy time of the day, be heard in the bustling thoroughfare at any distance. In quiet nooks further removed to some extent from the traffic, the neighbouring church-bells can be plainly heard.

When we remember the beautiful chimes of some of our ancient cathedrals and churches, the sweet and musical notes which come from the steeples of rural churches, and compare them with the sounds of more modern bells, the contrast is greatly in favour of the former.

There are certain bells still remaining in London, notwithstanding the Great Fire, which have historical notes. That, for instance, at the top of the Bell Tower which adjoins the governor's lodgings in the Tower, which was probably tolled at the execution of Lady Jane Grey, Anne Boleyn, and other state prisoners, and probably sounded alarms of fire and other calamities in early days. This bell seems to have been more particularly used by the Tower authorities than that in St. Peter's Church, which stands near the spot where the scaffold was usually erected. The bells of St. Bartholomew's, Smithfield, are old, and were probably rung when the court has come to the tournaments and jousting at Smithfield. With the exception of Westminster Abbey, St. Saviour's, All Hallows, Barking, Cripplegate, and Old St. Pancras, there are few of the ancient bell-towers of the metropolis remaining. Several of the bells, however, may have been saved from the ruins of the fire. There is also the bell of the Charter House, which has tolled at the departure of a brother from soon after the death of Sir Thomas Sutton. Many will still remember that, while the fire of the second Royal Exchange was raging, the self-acting bells played merrily the tune of "There is nae luck about the house," and eventually fell with a crash amidst the blazing ruins.

Those who live near the Regent's Canal, particularly in one part, have at times the opportunity of hearing many bells, for the water acts as a conductor of sound. While listening to these bells striking the hour and chiming the quarters, it is curious to notice the varied way in which the work is done. One is exceedingly slow, and in Johnsonian notes takes a long time to tell the hour of twelve. Another, also slow, although it commences loudly, falls off towards the end, so as to be scarcely audible. Some clocks fail in the same way in the middle of the long hours. One clock is impatient, and in a tinny tinkle strikes twelve before the others can complete two. This quick bell does not chime the quarters, but at each half-hour gives a sharp sound. Nor are the tones of the bells less varied: some are sweet and silvery, and float like pleasant music on the breeze: others are hoarse and heavy; and some have a cracked and miserable note. The effect of the atmosphere in the conveyance of sound is very remarkable. Sometimes for a week or more at a time not even those bells which are nearest can be heard. Then occurs a sudden change, and a multitude of sounds come from Citywards; or, as the wind may set, from other quarters. Although the Great Northern railway line passes at a distance of less than a quarter of a mile from the spot where this is written, at times not the least sound from it can be heard. At other times in the night, the signals and the puffing of the locomotives are heard from a long distance, as though blown close to the windows.

The compression of a heavy atmosphere, in towns, which envelopes all, and prevents the diffusion of sounds, is worthy of study; for, when the air is thus loaded, the evil emanations of ill drained spots are concentrated, and assume a more deadly character.

Great as is the number of bells in the metropolitan districts, they fail to produce the same amount of effect as in some provincial towns where a lingering relic of the curfew may be heard from the churches at morning and evening, where the passing bell is still tolled on the death of an inhabitant; and on special occasions rattling peals, stirring the memory and the feelings, may be heard by every one in the place. Let us end with two inquiries;—what is to be done with Big Ben? and are our bellfounders now-a-days as clever as they ought to be?

MEETINGS OF ARCHITECTURAL SOCIETIES.

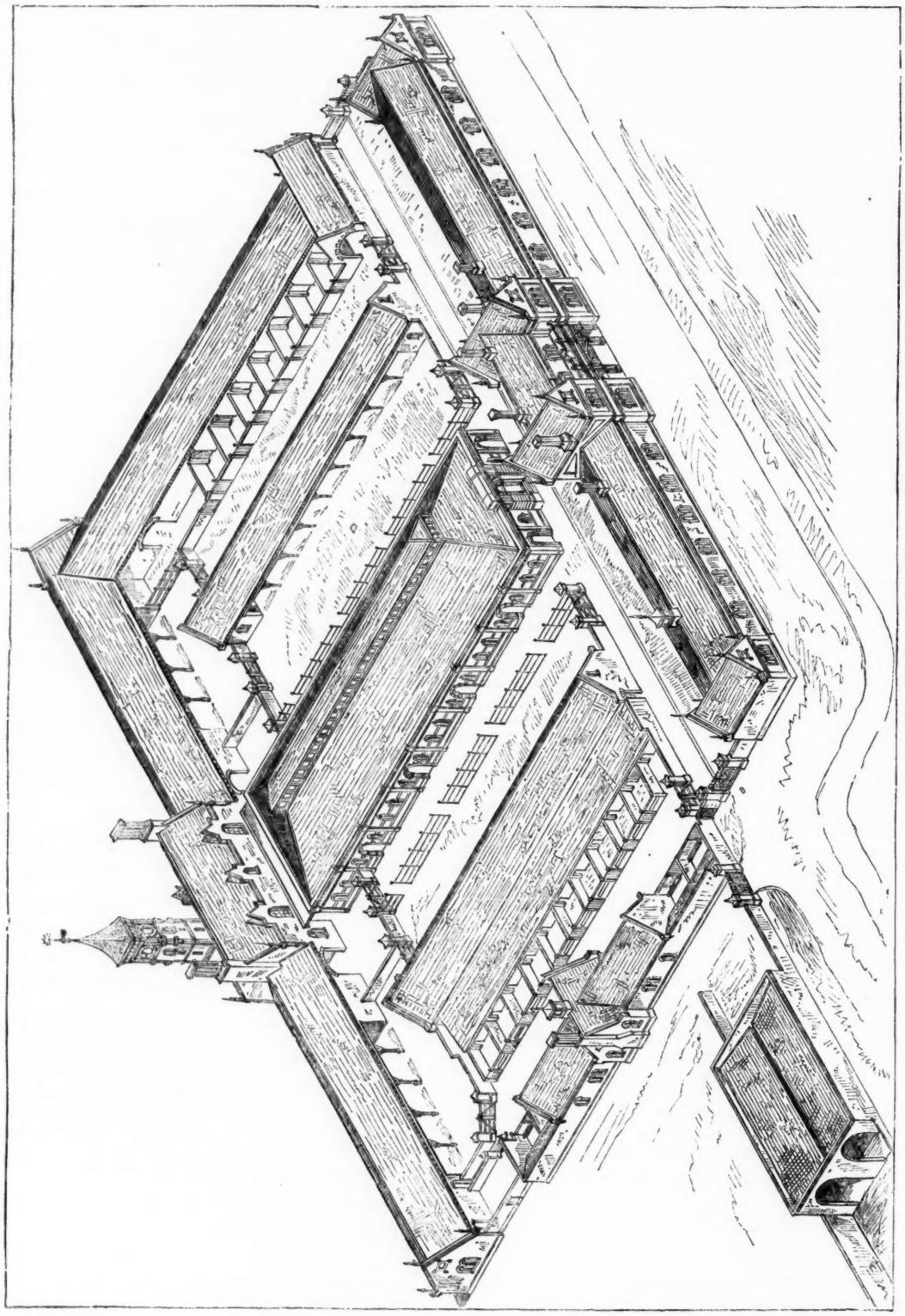
Edinburgh Architectural Association.—At the last meeting of this society,—Mr. R. Thornton Shiells, the president, in the chair,—Mr. Connell read a paper on "Ventilation, and its Influence on Health." On the paper having been read, Mr. Brown made a few remarks on the subject of which it treated, and the meeting separated with a vote of thanks to the chairman.

Liverpool Architectural Society.—The eighth meeting of the session of this society was held on Wednesday evening, the 28th ult., at the Royal Institution, Colquitt-street, Mr. W. Weightman, president, in the chair. After the transaction of business, Mr. W. H. Picton read a paper, "Notes on Rome and her Edifices."

THE PRINCE CONSORT'S FARMS.

THE recently published account of "The Prince Consort's Farms" is a book honourable to all parties concerned.* Its appearance is inviting; and the manner in which Mr. J. C. Morton has collected and arranged the materials is creditable alike to his knowledge and discretion. If he is a benefactor "who makes two ears of corn grow where only one grew before," how much so was the good Prince, who reclaimed or improved many hundred acres, and thus added a vast breadth of land to the "permanent staple" of the country; while by his example and successful investigations he assisted in leading to the general adoption of such improvements in farming as tend to increase greatly the produce of any given quantity of land. Our agricultural contemporaries will doubtless do full justice to the technical branch of the subject: to them it will afford many texts; for, as is correctly stated, his Royal Highness "stood, we believe, alone in British agriculture, as in himself the exemplar and exponent of a greater diversity of farm practice and experience than any other agriculturist." The book is in four chapters, headed, "The Royal Estates;" "The Prince Consort's Farms;" "The Prince and the Labourer;" and "Biographical;" with an appendix, giving a list of coniferous trees at Osborne and Barton, and list of animals exhibited and prizes won by the Prince. It is fully illustrated with sketches, isometrical views, maps, and plans, including engravings of many, if not all, of the cottages erected for labourers and others.

In the description of Osborne an account is



ISOMETRICAL VIEW OF THE PRINCE CONSORT'S DAIRY HOMESTEAD.

given of one of the Prince's contributions to the solution of the sewage question, formed as a remedy to the nuisance once caused by taking the drains to the shore for an outlet. We described at the time what was done, but may usefully quote the more complete description now given:—

"The original idea contemplated such a filtration of the sewage as should retain in compost with earth all the solid and most of the fertilizing ingredients of the liquid portion, letting the bulk of the water thus treated run to waste in a perfectly deodorized, and, as it was believed, purified and inert state. It is found, however, that while the nuisance has thus been completely abated, so that the water which escapes is limpid and without smell, it nevertheless carries with it much soluble matter of use as manure; and thus many acres of land lying below the line along which it is discharged over the northern side of the valley, are greatly increased in productiveness and fertility. The filter, designed by the Prince, by which this result has been achieved ever since 1851, consists of a brick-built tank, 30 feet long and 4 feet deep, and as much wide, divided into two equal parts by a wall across it, which has a double structure, with an interval of 6 or 8 inches between its parts. A similar double wall is provided at the end, which receives the drainage of the house. Into the space within the first double wall the drains deliver their flow, which thus sinks to the bottom and passes through holes at the bottom into the inner tank. There it rises through three successive sets of trays, each carrying 2 or 3 inches deep of mould, through which the water ascends to the surface of the first division of the tank. Thence it flows down the space within the second double wall, and in like manner rises through mould in the second half of the tank, which it ultimately leaves in an almost perfectly clear state, and entirely without smell. This water is then conveyed, partly by open channel and partly by hose, to one point and another over ten or fifteen acres of land, being allowed to flow unguided for ten or twelve hours at a time at each spot. At intervals of two or three weeks the tank and its trays are cleaned of all mud and sludge, and this is mixed with earth and forms a useful compost. The success of this scheme, and the simple manner in which it is carried out, seem to prove its adaptability to the cases of large establishments, as workhouses, gaols, and barracks, wherever sloping land exists, on which matter at present wasted could be turned to profitable account. As a contribution to the solution of the sewage question, it may be mentioned here that the waste of a household num-

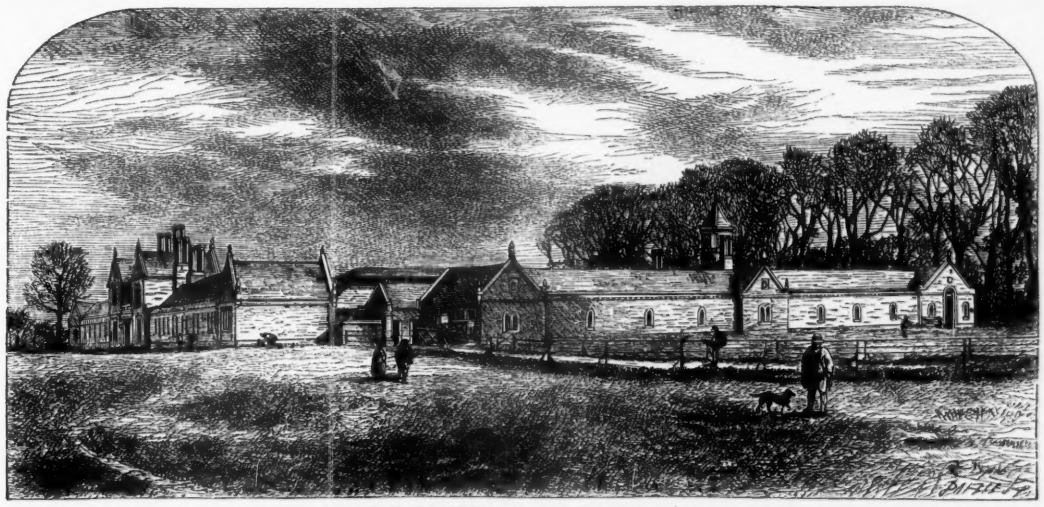
* "The Prince Consort's Farms: an Agricultural Memoir." By John Chalmers Morton, Editor of the "Cyclopædia of Agriculture." London: Longman, Green, Longman, & Co. 1863.

bering perhaps 150 persons during three months of the year, is thus delivered over fifteen acres, while the compost taken from the tank is applied to about one-third more. The produce of the grass is many-fold that of the land around it; and, eaten barer, it affords food enough for three or four times as large a stock."

In mid-winter, the land on which the house sewage is used is seen green in the midst of the generally bleached surface which poor grass land then exhibits.

Speaking of the Alverstone Farmery, Mr. Morton says,—"In the midst of this farm lies the tilery of the estate, where capital goods are turned out of all colours—white, red, and black. Moulds are used for every sort of brick required in the drainage either of fields, or roads, or stalls, or yards, and for every variety of brickwork connected with walls, windows, chimneys, roofs, eaves, and flooring." A gentleman-hobnails, to whom we submitted this paragraph, glowing with delight, said: "That's the way to improve your farms and lands: bring bricks to their doors." And so it is: but all are not able to effect it. The buildings on the various Royal farms exhibit great variety. For example:—

"There are the gorgeous dairy and magnificent cattle range of the Home farm, fit for inspection by Royal visitors; and the well-planned combination of stabling, cattle-boxes, stalls and yards, poultry-house and piggeries, with the covered sheep-shed over open floor, and manure tank underneath it, as a special feature at the Shaw Farm. The compact and compendious arrangement under a common roof of covered yard, with the stable on one side, and straw and food house, thrashing-barn, and granaries at the end of both—probably the latest improvement in modern homesteads—is seen at the



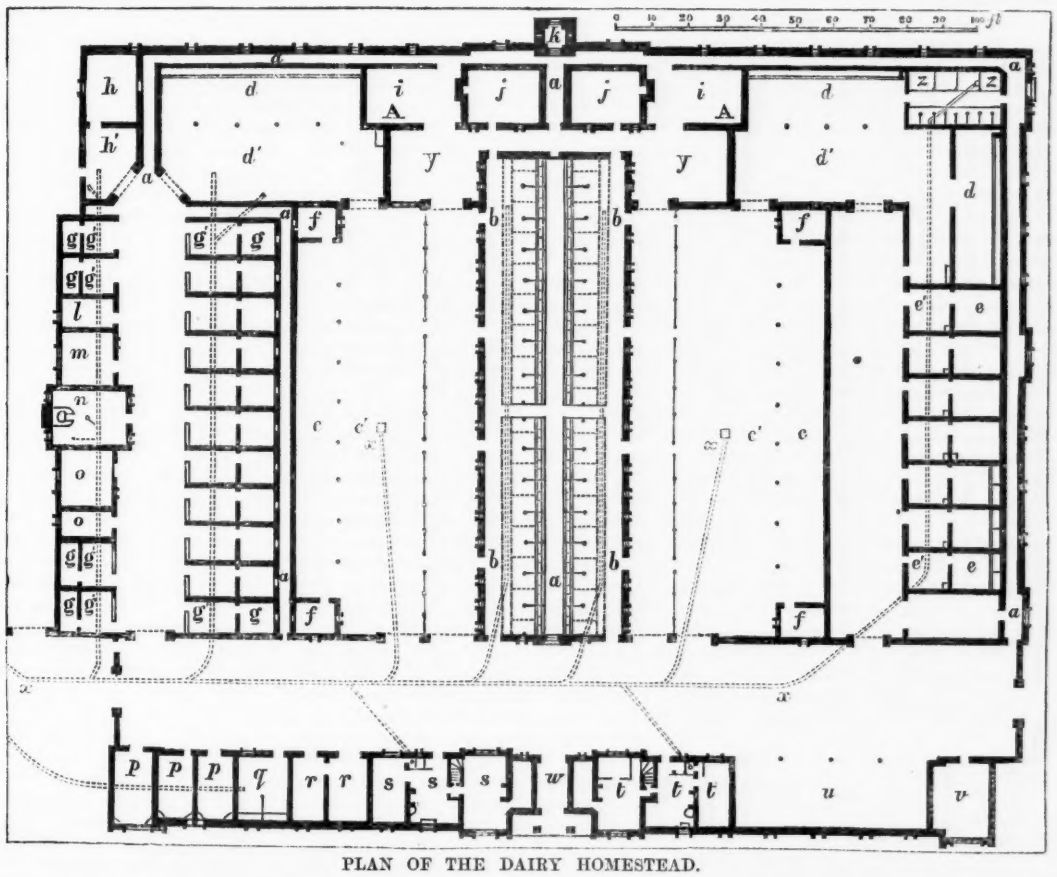
SKETCH OF THE DAIRY HOMESTEAD.

Flemish Farm. There is the old-fashioned thatched and wooden barn, with stabling, granary, and cart-shed, arranged around a large working court, in one corner of which stands the comfortable farm-house, at the Norfolk Farm. And there is something similar to this, though an improvement on it in respect to facilities for thrashing and for pig and cattle feeding, at the Rapley Farm."

All of these, except the last-named buildings, are fully illustrated by drawings and descriptions in Mr. Morton's pages. Of the illustrations we are enabled to give some examples.

The Dairy farm, Frogmore, built under the direction of Mr. Turnbull, exhibits many arrangements deserving of study. The principal feature in the arrangement is a magnificent two-rowed cow-house, with wide central gangway and lofty roof. The arrangements for watering and for draining, the latter being shown by dotted lines upon the plan, are most perfect throughout the building. The structure consists, it will be seen, of no fewer than five lines of building abutting upon a cross line which connects them, and which carries a clock-tower in its centre. A roadway runs across the other ends of these lines, and gives access up the intervals between them, which are used partly as roadways and partly as open yards. On the other side of this cross road, occupying, therefore, the same relative position as the cross line of building on the other side, stands another line with an architectural elevation, of which a separate drawing is given: it faces this dividing road. The other elevation of this row is seen in the isometrical drawing, which gives the general style of the structure. It includes cart-shed, cottages, loose boxes, and stables.

"From the southern end of it you walk up the space

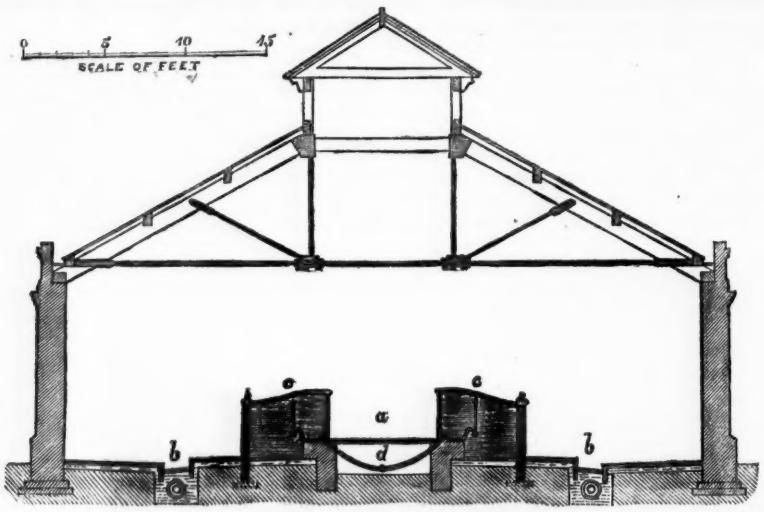


PLAN OF THE DAIRY HOMESTEAD.

between the first two rows of which the main structure consists. On your right hand is a series of pigsties, fed from the roadway through Crosskill's hanging flaps. You may also look into them from the gangway separating them from the cow-shed, which is provided with an open yard upon its other side. On your left hand are other pigsties, stores for food and litter, boiling-house, slaughter-house, &c.; the whole of this department being a most complete establishment for the accommodation of the valuable herd of the Prince Albert Windsor pigs. Traversing the gangway in which the road terminates, you pass yards, *h*, *d'*, and stores for straw and hay, *j j*, to the other side of the building, where is another open yard *d'*, provided with sheds, a calves' house, *z*, and hemels, *e e'*, for feeding cattle, cows, and bulls. Between this, the fifth ridge line, and the fourth, there is, as between the first and second, a roadway, and on the other side of the roadway is a shed like the cattle-shed of the second ridge line, furnished, as it is, with an open yard. The central line is the noble cow-byre to which reference has already been made. Its dimensions will be gathered from the following section. The stalls are 9 feet wide, for two cows each, divided by slate partitions."

The iron trough for each is divided into three compartments—the central division for water. The raised gangway, *a*, has a stone floor, with slabs of slate on either side of it. The pipes, *d*, supplying water to the drinking-troughs, lie below the passage floor. The stalls and passage floors are asphalte. The gutter, *b*, presents a sloping cross section, allowing of the easy escape of water, which falls at intervals into the drain shown in section below it.

The whole of the floors are laid upon a bed of



SECTION OF COW-HOUSE.

concrete, and this has completely prevented rats, mice, and other vermin from burrowing below them. The several yards for cattle have drinking-troughs stationed in them, supplied on the self-feeding principle; and there are hydrants placed in various parts of the buildings, with a plentiful supply of water from the Castle waterworks in case of fire. The surface water from the roofs and roadways is carried away by a separate set of drains, which are not shown in the plan. The whole of the door and window jambs, the ornamental coping, corbels, terminal pieces, and panels in gables, are executed in terra cotta. This was done by the command of the Prince Consort, who took great interest in superintending the erection of the homestead, declaring when it was finished that he possessed the best cow-house in the world. The reader will easily gather, by an inspection of the plan, how well and with how much economy of labour it is adapted to its purpose. In nothing is this saving of labour more considerate or more economical, than in the provision of cottages for the herdsmen and young men employed in them. These occupy a position, *s* and *t*, on either side of the central archway.

It may be added that the whole of the soakage and drainage of the sheds and yards is conducted to a manure-house, outside the plan, but represented in position in the isometrical drawing.

Arrangements are here made, and wisely, to prevent loss by the fermentation of the soiled litter. On this point we have often spoken, believing that throughout the country two-thirds of the valuable farm-yard manure produced is either lost or spoiled by exposure to the elements. Mr. Morton dwells on the advantages of the covered and inclosed dung-pit, and no one need be alarmed at the expense; for he states that a construction at the Home Farm, 30 feet by 35 feet, and 10 feet deep, is sufficient as an appendage to buildings affording stall and box accommodation for 200 cattle of all ages, and fifty or sixty swine. Too much attention cannot be directed to Mr. Morton's observation on this subject; and we hope ere long to find every homestead provided, as of the first importance, with the means of protecting, till carted on to the lands, the natural and most effective fertiliser.

The Dairy and some of the cottages we have ourselves fully illustrated on previous occasions; and we must here terminate our present notice of this very valuable book;—valuable in two capacities,—as a manual of information useful to the proprietor, the agriculturist, and the architect, and as a further exposition of the sagacious labours in the cause of social progress of the illustrious man we have lost. He touched everything, and advanced all he touched.

THE APPROACHING MARRIAGE OF THE PRINCE OF WALES.

ALREADY the note of preparation is sounding throughout the land for the purpose of giving due expression to the loyal feelings of the public in connexion with this event. The corporation of the ancient and honourable city of London, and some hundreds of old and modern boroughs and corporations, are considering how best to do honour to the day. At Windsor Castle the decorators are actively at work; and before two or three weeks have passed St. George's Chapel, by the aid of carpets and hangings, will present a somewhat gay but impressive aspect. We, and thousands, would have been glad for the marriage ceremonial to have taken place in London. This, however, is not to be. Even at Windsor, however, a route from the Castle to the Chapel might be contrived which would allow many to see part of the wedding pageantry.

So far as the arrangements are determined, the future Princess of Wales will land at Gravesend, and there will be received by the Prince, and conducted from that place by the road to, and thence through, London. This will allow an opportunity for a marked expression of feeling; for, besides the welcome to be given to the fair stranger, this will also be the first public appearance of the Prince in this the capital of these realms. On this occasion we do not expect to see the old-fashioned towers, with surprises of mermaids, angels, and giants; but we need not lose sight of the tasteful and elaborate decoration of the streets through which the royal couple will pass. There should also be as much state and importance as possible given to the procession which will pass through London.

On most of those instances of rejoicing which have occurred in modern times, the street decorations have been sad failures; and this has been chiefly caused by the want of some good and general supervision. As these things are usually managed, everything depends on individual exertions; and, in consequence, the general effect is very unsatisfactory. There are many points between London Bridge and Buckingham Palace which would afford as good opportunities for display as do the streets of most foreign towns.

In the City there either has been, or will soon be, appointed a committee, who will arrange the means and superintend the preparations for the public reception. There should also be meetings of the inhabitants of other districts, at which committees should be formed and subscriptions opened for the purpose of meeting the necessary expenses.

We would not now in a stately procession see the numerous and armed bands of the nobility and gentry wearing the badges and mottoes of their chiefs; nor will the liverymen in their many-coloured gowns act the part of policemen, and keep the roadway of Cheapside clear for the approaching cavalcade; but in these days the discipline and good management of the police on such occasions is in itself a show; and instead of the armed retainers, we might array in a procession thousands of well-dressed and well-ordered workmen belonging to various trade and other societies. There are also the thousands of children of our charity, national, Sunday, and other schools, who, placed in proper positions, would not only make a comely sight, but also, by their united voices, be able to give a pleasant note of welcome. There are, too, the Volunteers, who will, no doubt, on this occasion, come forward in considerable numbers.

The short days of February will rapidly pass away, and we would have care taken to make timely preparation. The very circumstance of persons meeting together to consider the matter would lead to many practical suggestions, and probably add much to the effect of a general display. There will be considerable uncertainty respecting the arrangements for celebrating this royal marriage, until some official announcement of what the Government recommend on the occasion has been made. The month of March is scarcely a safe time to risk the display of fireworks in the parks; and the same may be said respecting the opening of a fair, or making display upon the Serpentine. It would be well, however, to hear as soon as possible what suggestions are made; and whatever may be determined upon, let it be well and earnestly carried out, so that we may succeed in publicly celebrating an event in which all classes of the community, both rich and poor, take much pleasure and interest.

THE CURIOSITIES OF SOME ENGLISH SURNAMES.

THIS subject, which some have considered of trifling consequence, has been of late exciting attention; and what with the singular origin of many names, and the changes and corruptions which have taken place in the progress of time, English surnames have become a matter of much curiosity. The belief that "the rose by any other name would smell as sweet," cannot rightly be held; for, although it is true that genius or good conduct can give distinction to names of no pleasant sound, it is also certain that in the artistic and literary world, and in other positions in life, the name of a youthful aspirant is not without a certain amount of consequence. About half a century ago, not only in many provincial towns, but also throughout most rural districts, and even in parts of the metropolis, it was the custom for persons to be best known by their Christian name, and one in addition descriptive of their pursuits, or indicative of some peculiarity, as in their manner and appearance. Even at the present time this primitive custom is not out of use in certain rural and mining neighbourhoods. In this way we have had generations of Boots, Ostlers, Gardeners, and other persons connected with inns and houses: we have also had the signs of the inns themselves; and in families of some note, the bearing of badges or cognizances have given rise to names,—among which may be placed Lion, Roebuck, Talbot, Swan, and many others. Local positions have also much affected surnames; and we find Horsefield, Woodford, Westgate, Northgate, Southgate, Eastgate, Blackgate, Whitegate, and other gates; Westgarth, &c. &c.

Then we have also a vast number of derisive and sarcastic names. Amongst these may be classed the Piggs, Milksops, Foxes, Slowmen, Tallboys, Whiteheads, Blackheads, Littles, Riggs, &c. We have remarked, as indeed every Londoner must have done, a disposition in tradespeople with certain surnames, either to adopt businesses having some noticeable connexion with their names, or to enter into partnership with other persons of surnames capable of thus attracting attention. We recollect of a milkman in King-street, Holborn, of the name of Milksop, for example; Flint & Steel, in Holborn; and in the "London Directory" may be seen the name and address of one Steer, a cowkeeper, in Whitechapel. There is a well-known nurseryman at Highgate of the name of Cutbush. Firms have often curious names, even though not significant of their calling;—Ward & Lock, the well-known publishers, for instance. Moreover, there are seasonable names, such as Spring, Summer, and Winter, and it might be worth while to search the Post-office Directories for the name of Autumn. The names of the months, however, seem to have been especially neglected in connexion with surnames. March is a name by no means uncommon; but it has had another origin than the month. The Fields form a numerous family: besides the simple name of Field there are Butterfields, Springfields, Meadowfields, and many others of this description; and there are persons of the name of Meadows, Cowmeadow, Hawthorn, and other terms which have a pleasant rural sound. We have often felt regret that the surnames of many of those who have been raised to the peerage have been changed in such a way that the original names, and even the means by which the first bearers achieved greatness, are forgotten by the general public.

Surnames which have foreign roots would make a long list, and show to what a great extent this country has been improved by the introduction of fresh blood. Examples of this importation of new names might especially be picked out in Spitalfields,—a district which was long prosperous; but which at present is shaded by a cloud of adversity. In Birmingham, too, and throughout the midland counties, there will be found lingering the names of those broad-shouldered and active Flemings who at one period gave a great impulse to the manufacturing industry of this country.

If George or Robert, the descendants of one Stephen, had lived in old times, and if it had been

then possible that they should have assisted in the invention of a locomotive, there is no doubt that some name would have been, in a cant way, applied which would have been even more familiar than Stephenson at the present time.

There are many shades of colour in surnames: thus, there are Whites, Greens, Browns, Reids, Reddies, Blacks, &c., and these names of colours have been in several ways corrupted. As regards some of the commonest of such surnames,—Brown, for instance,—its varieties are extraordinary, and the same may be said of others.

There are some surnames, the origin of which forms a subject of considerable discussion. For instance, there are Cæsar,—even Julius Cæsar,—and Death, Corpse, Skull, Suett, Raw, Ram, Dam, Rascal, and others mentioned by a contemporary. In accounting for such names it is worth while to remember that before the reign of Queen Elizabeth, when the registration of births and deaths was to a certain extent for the first time insisted upon, and the mode of doing this was reduced to some sort of system, many thousands throughout the land must have been obliged to decide for themselves, or to have decided for them by others, the question of surname to which they had no legal or established right; and to a great extent the general custom of employing cant or "nick" names, and the ignorance of the masses of the people themselves, would cause many of them not to be very particular as regarded the names which should descend to their children.

The origin of such names as those of the Smiths, the Wardens, Wardells, Armstrongs, Wrights, Cartwrights, Wheelwrights, Archers, Bowyers, Goldsmiths, and many others, is very evident; but there are a multitude of other surnames of comparatively modern origin. There are constantly foundlings cast away in the streets, squares, and by-lanes of our cities; and also in the country districts and provincial towns. In this way there are many odd names originated. Many, also, are born in the workhouses and unions, who are either named by the authorities, or very doubtfully surnamed by their mothers. Many curious notes might be gleaned from the parish books. At the Foundling Hospital, since worthy Captain Coram and Master Hogarth's times, there has been difficulty in finding names for the children. We have before referred to this circumstance; but it is worth while again to mention that a vast number of surnames have originated in this hospital, and that many which had become uncommon were revived: in this way it is likely that even the name of Julius Cæsar has come into use by a London shopkeeper; for at times the committee of management selected for a term had difficulty in finding new names for the poor foundlings. Sometimes a classical taste prevailed, and we find that those with "no name" became, like the negro slaves in America, Hannibals, Cæsars, and so on after the well-known heroes of antiquity: then would come a literary and artistic taste; and so we had the names of great writers and painters applied to helpless and forlorn little children.

The corruption of what have been in the first instance good names is a matter of complaint to many: for example, Mountjoy would be not a bad cognomen; but in the north of England it would to a certainty be corrupted into "Mainjey," a term applied only to diseased and dirty dogs.

When surnames have been corrupted or altered in bad taste, they may often be improved by the mere alteration of a single letter; and those which are incorrigibly unpleasant may, at very little trouble and cost, be changed altogether; but, in nine cases out of ten, the best plan is to determine by right personal exertions to give credit to a name which in the first instance might not be remarkable for either its beauty or its seeming fitness.

THE PNEUMATIC DESPATCH.

THE modified revival of the atmospheric system appears to promise well, at least for the transmission of letters, parcels, and other goods. It may be a question whether it would not be the best system for underground railways in place of the objectionable locomotive. Lord Stanley of Alderley, the Postmaster-General, and Sir Rowland Hill, the Secretary to the Post-office, have officially inspected the working arrangements of the branch tube from the Euston Station to the North-Western Post-office, in Eversholt-street, previous to the transmission of the mails between these two places; the Post-office authorities having conceded this privilege to the Pneumatic Despatch Company; and on the arrival of the Postmaster-General and Sir Rowland Hill at the station, within the boundary of the Euston Terminus, they were received by Sir Charles Rich, one of the directors; Mr. Margary and Mr. Rammell; the secretary and engineer of the Pneumatic Despatch; Messrs. Blake and Stewart, of the London and North-Western Railway, being among those present. The working arrangements were thoroughly explained by Mr. Rammell, the engineer, and trains of cars were rapidly propelled backwards and forwards through the tubes. The cars contained heavy weights; being principally loaded with stout planks; and on the signal being given by Wheatstone's telegraph, they were despatched to the other end of the tube, with a pressure of about 4 ounces, in a few seconds over a minute; the average up the incline being about 1 minute 12 seconds, returning by vacuum in 1 minute 5 seconds. The mail bags—upwards of 120 per day—will be blown through the tube in 55 seconds to the post-office, Eversholt-street; the usual time occupied by the mail carts being at present about 10 minutes. Two persons were conveyed, in presence of the Post-office authorities, through the tube, and returned by vacuum without having experienced the slightest discomfort. The Postmaster-General observed that the system appeared from the experiments to be very satisfactory and efficient. Previous to leaving the station at Euston, Lord Stanley descended with Mr. Rammell into the air-chamber of the revolving disc, the motive power of which consists of a fifteen-horse power engine.

The next step of the company will be to lay tubes connecting the markets of London with Camden Goods Station, with a tube to the General Post-office and Pickford's depôt in Gresham-street; and these operations will eventually tend to revolutionise the carrying system of the metropolis, and relieve the crowded state of our principal thoroughfares.

GLASGOW ARCHITECTURAL ASSOCIATION.

THE usual meeting of this Association was held on the evening of the 27th ult., the president in the chair. After the minutes of the previous meeting had been read, the hon. secretary laid before the meeting communications from the Institute of British Architects, and from the Architectural Institute of Scotland, Edinburgh, in which they intimated their intention of presenting copies of their printed transactions to this Association. Mr. Melvin then read an essay on "Propriety of Styles." A discussion followed.

CONVERSAZIONE OF THE MANCHESTER ARCHITECTURAL ASSOCIATION.

THIS Association held its annual conversazione in the Library Hall of the Athenæum, on Thursday evening, the 29th ult. A number of tables were arranged in the Hall, on which was displayed a valuable selection of goldsmiths' work and pottery. The latter comprised specimens of the progress of porcelain manufactory from the Grecian period down to the present time. There was also a fine selection of encaustic tiles and some choice serpentine granites from Cornwall. The whole of these were exhibited by Mr. T. Oakden. On the side tables was a magnificent series of architectural and other photographs, by Mr. Francis Bedford, lent for the occasion by his agent, Mr. C. J. Jackson; and on the walls were displayed some original architectural detailed drawings, by Leoni, the Italian architect, which had been contributed by Mr. W. J. Legh, M.P. Portfolios of original sketches by Italian masters, and valuable architectural works of design were placed about the rooms, and numerous architectural designs by native architects were hung upon the walls. At the lower end of the room was a full-sized model of a portion of a waterproof glass roof, constructed of the new sectional form of glass manufactured under the patent of Messrs. Showell, of Manchester.

Mr. Lawrence Booth, the vice-president of the Association, delivered a short address. He said it was the first occasion on which there had been a number of friends not connected with the Association present. It was only in a few of the large towns that associations of the kind were established; and it was considered that such an important city as Manchester ought not to be behind less important places in architectural matters. Their institution was founded in 1860, and from that time the number of members had been gradually increasing, the society now including about fifty members.* Some opposition had been met with where least expected, but the Architectural Association had extended to them the right hand of fellowship. Mr. Alderman Goadsby then addressed the meeting. He commented upon the great advance which had been made in the architectural adornment of this city during the last few years; and said that he believed, when the present distress passed away, other works would be commenced superior to anything before attempted. Mr. J. J. Lyons also spoke, and the proceedings closed about eleven o'clock.

PRESENT TO THE TOWN OF SWANAGE.

MR. MOWLEM, whose name in connexion with the stone trade of Guernsey is known to some of our readers, has erected and presented to the town of Swanage an Institute for the Working Classes. The building is described as being "in the Romanesque style, treated freely. The reading-room is 46 feet long by 25 feet wide, and 25 feet high, with a library under a spacious gallery at the west end. The building is erected of the Swanage stone, roughly hammer-dressed in random courses, pointed with black mortar. The dressings are of the same stone tooled." Mr. Mowlem has invested 200*l.* in the Funds for the benefit of the institute.

ST. FIN BARR'S NEW CATHEDRAL, CORK, COMPETITION.

THE general committee for the erection of this cathedral have adopted the design with the motto "*Non Mortuus sed Virescit*," as that deserving the first premium, 100*l.*, and as that which should be the one ultimately built. To the design with the motto "Let us arise and build," has been awarded the second, 50*l.*

The delay in coming to a decision is said to have been caused by the anxiety of the committee to do full justice to the competitors by the exhibition of the plans to the public.

"*Non Mortuus sed Virescit*" is the design of Mr. W. Burges, of London. "Let us arise and build," that of Mr. T. Newenham Deane, of Dublin.

We have already received letters taking strong objections to the selection of the first design on the score of cost; but they reached us too late for consideration.

THE NEW MARKET AT CHESTER.

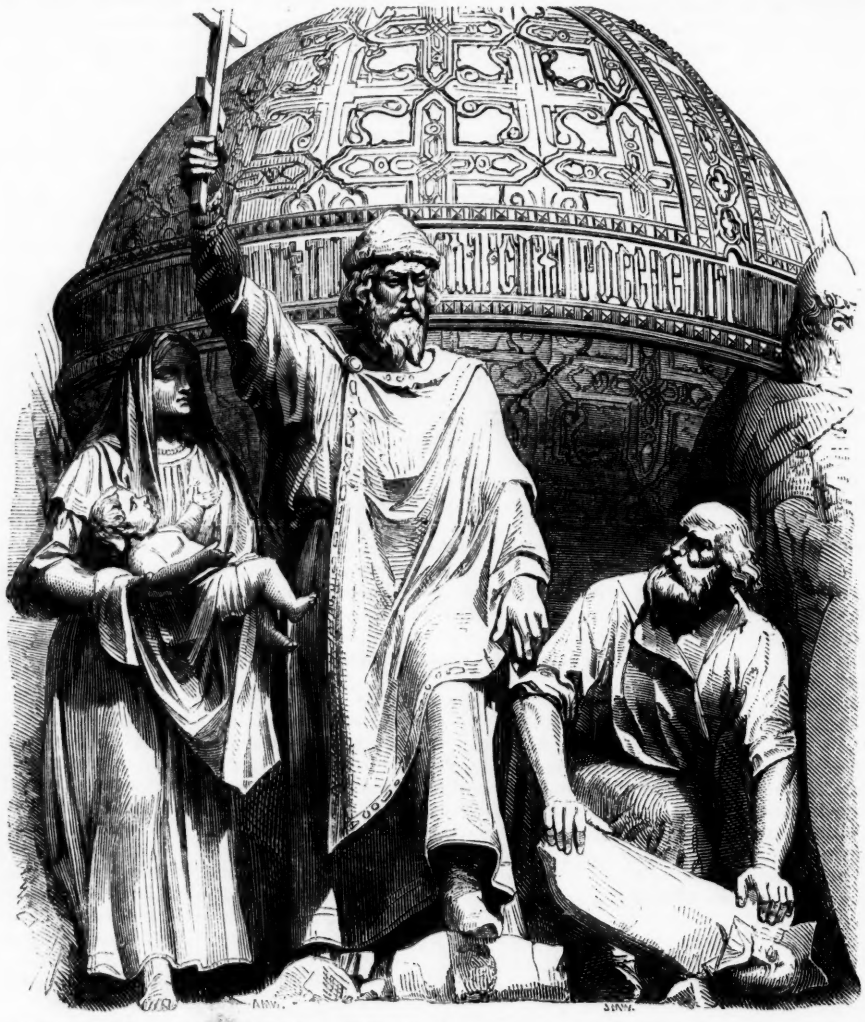
THIS new market will shortly be opened. The main front is in Northgate-street. It is built of stone from the Manley Quarries. Extending to a length of nearly 120 feet, it is 50 feet high in the centre to the apex, and 36 feet in the wings. It is divided into three parts, the centre slightly in advance, with two wings, corresponding with the threefold division of the internal roofing, the centre part being the widest. These are again subdivided into three intercolumniations by three-quarter engaged columns round and square, the square ones occupying the angles, all rusticated by horizontal and oblique bands, and supporting a Doric entablature and balustrade, broken over the columns, and which in the central part rises higher and follows the pitch of the main roof. A group of sculpture is now in course of execution to be placed on the apex of the building. A fountain of red granite is to be inserted in the inner columns on each side of the main entrance.

The interior is divided by ranges of cast-iron columns and girders into a centre and two aisles, the former raised about 10 feet higher, so as to leave a clerestory filled in with plate-glass luffers along the length of the building; further ventilation being provided by quasi clerestories 5 feet high, also filled in with luffers, produced by raising the central portion of each roof, and glazed with rough plate glass. The roof is constructed of light wrought T iron and king and tension rods, covered with diagonal boarding on timber purlins. Around the three sides of the market are ranged twenty-seven shops, and over that at the north-west angle is provided the inspector's office, overlooking and commanding the whole market.

The Fish Market, of an area of about 70 feet by 40 feet, is situate at the north-west angle.

Messrs. W. & J. Hay, of Liverpool, were the architects of the building, and have been assisted in the superintendence of the works by Mr. Richard Davies, the city surveyor. Mr. Roberts, of Chester, was the contractor. The style is described as an adaptation of the Flemish Italian, treated with freedom.

* In earlier days Manchester had a very active architectural society.—ED.



THE NOVGOROD MONUMENT, RUSSIA.—ONE OF THE GROUPS AROUND THE ORB.

THE RUSSIAN MONUMENT, AT NOVGOROD.

OUR readers will have heard of the completion at Novgorod of the monument erected to commemorate what is called the one thousandth year of the Russian empire, dating from 862 to 1862. We are glad to be able to place a view of it before the public at a moment when the character of a memorial in which the nation is concerned is about to be decided on.

The upper part of the Novgorod monument, of bronze, consists of an orb, 15 feet in diameter, surmounted by the cross and two figures emblematic of the orthodox faith, as the foundation of the moral elevation of the Russian people. Around the lower part of the orb are nineteen figures, each 12 feet 6 inches in height, arranged in groups, personifying the six principal epochs in the history of Russia, and thus placed:—

Rurick—the foundation of the Russian state, 862.

Vladimir—the introduction of Christianity into Russia, 988.

Dimitry Donskoi—the liberation from the Tartar yoke, 1380.

Ivan III.—The foundation of the Russian monarchy, 1462.

Michael Fedorovitch—the restoration of the monarchy by the election of the house of Romanof, 1613.

Peter the Great—the reformation of Russia and the foundation of the Russian empire, 1721.

The lower part of the monument is partly of bronze, partly of granite. The portion immediately under the groups is of bronze, then comes a cornice of Serdobol granite, then a series of bas-reliefs in bronze, and then a socle of Serdobol granite.

The bas-reliefs, 5 feet in height, represent men and women (107 in all) who have contributed, by their exploits, to the glory of the Russian empire.

The diameter of the lower part where surrounded by bas-reliefs is about 28 feet: the height of the pedestal, base, and pavement, is 21 feet; and the height of the whole monument, 50 feet. The weight of the bronze portions is 65½ tons. The cost of the monument is stated to be Rs. 480,000, or, taking the rouble at 3s. 1½d., 75,000*l*. About one-third the amount has been raised by subscription: the remainder is to be paid out of the State treasury.

The group, of which we give an enlarged view, typifies the epoch of Vladimir. On one side, at his bidding, the people destroy their idols: on the other a mother offers her child for baptism.

In the general view Peter the Great is seen on the right hand side, protected by a winged figure, with the right hand on his right shoulder. The figure on the left of the view represents Michael Fedorovitch.

The monument, as a whole, is bell-shaped, to remind the Russians of the great bell which was always rung when they were threatened by an invasion of the Tartars. It was designed by M. Mikeschine, a young Russian artist.

A VISIT TO PART OF THE MIDDLE-LEVEL MAIN SEWER.

THE members of the Holborn District Board of Works being desirous of satisfying themselves as to the progress of the works and general state and character of the Middle-Level Sewer, application was made to the Metropolitan Board of Works, and Messrs. Brassey & Co., the contractors, were instructed to afford every facility for pursuing the inquiries on which those gentlemen desired information. Descending down a shaft which was prepared in the contractors' yard, near the western bank of the Fleet, the visitors were ranged under the guidance of Mr. Lovick, assistant-engineer, and of Mr. Isaacs, C.E., surveyor of the Holborn District, and proceeded westward. The first part to which attention was directed was the junction with the Fleet. When the main drainage was designed, the Metropolitan Railway was but in embryo, and an alteration of the original plan had to be effected to meet the altered state of the case. This alteration has been made since the original line of sewer has been completed, and the whole business has been accomplished without injury to the property in the crowded locality through which it runs. Passing onwards the visitors were informed that the tunnel through which they were traversing was bearing on its shoulders the enormous weight of Reid's Brewery, a feat which it seemed to accomplish without flinching and without any apparent sign of the enormous load which it had to bear. Still moving westward, the visitors minutely examined the appliances introduced for the interception of the subsidiary drainage; how Gray's-Inn-lane, with its numerous courts, Bedford-row, and the regions of the Foundling and Bloomsbury, were provided with an outlet for their refuse, and the means for the periodical inspection of the main artery.

At the junction of Theobald's-road and Bloomsbury-square there is an awkward projection of houses which has long been considered the subject of metropolitan improvement. To avoid interference with these houses, a curve of an extensive character had to be constructed; and the visitors were surprised to find, on approaching this spot, that, although no external indications existed of work having been executed below the surface, the curve had been constructed and no impediment intervened to their progress, and they proceeded onwards until they reached that part of Oxford-street where the works, having been postponed in order to prevent interruption to traffic during the Exhibition season, they were at last compelled to retrace their steps in consequence of the tunnel not having been sufficiently advanced to admit of their further progress. The return journey was accomplished in much less time than the advance had been made, until a halt was sounded, when the explorers were by no means displeased to find that, although at so great a depth below the surface, the amenities of social life were not forgotten, and over a glass of veritable cliquot, they were enabled to drink the health of Mr. Lovick, the assistant engineer, who had devoted himself to the duties of cicerone, and of the contractors, Messrs. Brassey, Ogilvie, & Harrison, who had kindly placed their whole staff at his disposal to assist him in this duty.

MONUMENT TO THE LATE ARCHBISHOP OF CANTERBURY.—In is proposed to erect in Canterbury Cathedral a monument to the memory of the late Archbishop Sumner. With this view it is intended to raise a sum of 1,000*l*.

MONUMENT OF THE RUSSIAN EMPIRE, AT NOVGOROD.——DESIGNED BY M. MIKESCHINE.

A LECTURE ON ARCHITECTURE TO THE ROYAL ENGINEERS.*

ON being requested to deliver a lecture "On the Principles of Design in Architecture," I willingly consented to do so; the result of long and patient thought on the subject having led me to conclusions so different from those which generally prevail, that I am glad of an opportunity of explaining my views to such an audience as this, feeling confident of the correctness of the reasoning I am about to lay before you; and being, at the same time, impressed with the importance of a juster appreciation of the true conditions of the problem being generally diffused. It seems to me that unless this is the case, it will be impossible for any improvement to take place in the present very unsatisfactory state of architectural design. Unless, also, architects are agreed in the principles on which the science of their art is based, all criticism must be empirical and worthless.

Before, however, I attempt to define what architecture really is, let me first try to explain what it is *not*, for I feel convinced that one-half of the errors in design, and nine-tenths of those of the theory, arise from mistaken analogies with other arts with which it has no real affinity, and from false theories based on these erroneous data. First, then, architecture has no affinity in principle with painting and sculpture. These arts are what are properly called phonetic arts—that is to say, are voices, or represent what may be expressed by words. In Egypt painting was the only mode of perpetuating thought, but since the invention of the alphabet, painting has become subsidiary to writing; still all our paintings are either repetitions in a different form of what has been written, or representations of things which might be expressed more or less clearly in words. Hogarth's "Rake's Progress," for instance, or his "Marriage à la Mode," is a novel written with the brush. The thousand and one pictures which illustrate Milton's "Paradise Lost," or "The Vicar of Wakefield," are only transcripts in another form of the original poem or novel; and even our landscape or animal painters are only doing in a vivid manner what words would paint—if not so well, yet in some respects with more distinctness of detail. Sculpture is an art which has the same tendencies and objects as painting, only that it expresses by form what its sister art accomplishes by the employment of outline and colour. Still the pen, the brush, and the chisel, are only instruments for doing precisely the same thing, though in different ways. But architecture has nothing to do with words. No amount of eloquence will build a house, and no conjuration of words will keep out the weather, or warm the inside of a dwelling: words cannot make a house, and a building can only express a very few and limited class of ideas, and these only very imperfectly. Notwithstanding all this nothing is so common as to group these three arts together; and the painters, sculptors, and architects, are supposed generally to be men following different branches of the same profession, and are joined together in the same academies as if they had everything in common. Yet, unless you can thoroughly eradicate from your minds all idea that there is any analogy between them, it seems to me impossible that you can ever acquire any clear ideas as to what architecture really is or means.

If, however, architecture has no real affinity with these phonetic arts, there is another group of arts with which its relations are intimate, and all the analogies drawn from them are true. The group I allude to is that of the useful or technic arts; and without attempting to go into any classification of these it will be sufficient at present to define them as those arts which provide for mankind *food, clothing, and shelter*. By a beneficent arrangement all these, which, in the first instance, are indispensable for his existence, are capable of being refined into fine arts, so as not to supply the wants, but to gratify the tastes of mankind. It is the desire to possess these refinements which is the greatest incentive to exertion, and it is practically their possession which distinguishes the civilized from the savage races. To take an instance: man cannot eat raw meat, and even raw vegetables or fruit are very poor food to work upon, so that roasting and boiling become quasi necessities; but when men have leisure and means they soon become dissatisfied with even these, and stews and compounds of various kinds become indispensable till at last the useful art of cookery is refined into the fine art of gastronomy.

It is the same with clothing: a sheepskin and a blanket are sufficient to keep out the cold, but these have been refined by steps I need not trace, into art as elaborate and as expensive as any other. The fairer half of the creation, at all events, spend more time and money on making their dress beautiful than, I fear, is spent on architecture; and even men are not always quite free from the hankering after the beautiful in this form.

It may at first sight appear comparing great things with small to compare architecture with gastronomy and tailoring, but this is not the question: what I assert most unhesitatingly is, that the useful art of building is refined into architecture by the identically same process by which cookery is refined into gastronomy, or tailoring into an art without a name. The same process which refines a boiled neck of mutton into a dish of cutlets *à l'Impériale*, or a grilled fowl into a *Poulet à la Marengo*, or any other elaborate compound, is the process by which a hut to shelter an image is refined into a temple, or a meeting-house into a cathedral; and so essentially is this the case, that if you wish to acquire a knowledge of the true principles of design in architecture, you will do better to study the works of Soyer, or Mrs. Glass, than any or all of the writers on architecture between Vitruvius and Pugin. Architecture is thus nothing more nor less than a useful art, necessary for the existence or convenience of man, refined into a fine art in order that it may also minister to his intellectual gratification.

In this country the civil engineers are the plain cooks, and, though most excellent in that capacity, generally make a sad mess of it when they borrow a cookery-book and try their hands at a higher flight. The architects with us are what the French call *des Artistes*, and, like their confreres, are very indignant when asked to superintend the spit or to look after the boiling of a leg of mutton. Both are excellent in their way, but the fact is that no line can be drawn between them, and no one can say where the useful art ends, or where the fine art begins: it changes with times, places, and subjects, but the process is the same in all branches; and whenever you desire to refine any useful art into a fine art, there is only one path by which it can be done, and that is the same for all: if you deviate one hairbreadth from that path, you get into difficulties, from which no talent has ever yet been able to recall the wanderers.

It is hardly necessary to enter into the argument whether it is expedient to build beautifully, or to cook elaborately, or whether we ought not to be content with plain roast and boil, or plain undisguised brick and unhewn stone: all, I fancy, will agree that the element of beauty or refinement, if it can be obtained without unnecessary inconvenience, or without materially enhancing the cost, ought to be aimed at; and that this, when it is accomplished, is a gain to the refinement and dignity of mankind.

If all this is as clear and simple as has just been stated, it may well be asked why it is not universally acknowledged, and how was it that men ever came to believe that there was any connexion between architecture and the phonetic arts, or ever came to practise it on these mistaken principles? The answer to this is unfortunately only too easy and obvious. When in the fifteenth and sixteenth centuries men re-discovered the literature of Greece and Rome, they were so much struck with the immense superiority of the classical literary models, as compared with anything that had been done in Europe during the middle ages, that they one and all became enthusiastic classicists. So far as literature only was concerned they might be right; and they were also, perhaps, not far wrong in reproducing the refinement of the classical ages in the sister arts of painting and sculpture. The error was in jumping to the hasty conclusion that the same reasoning applied to architecture also; in fact, that the principles of the phonetic arts might be applied to the technic, or useful arts. No sooner was this false analogy conceived than architecture was taken out of the hands of the true experts—the master masons who had brought it to such perfection—and was handed over to such men as Alberti, a scholar; Michaelangelo, a painter and sculptor; Raffaelle, Perruzzi, Sansovino, Giulio Romano, and others who were painters—in short, to the artists who practised the phonetic branches of fine art, but who had no real knowledge of construction or any definite idea of the principles on which the art ought to be carried out. From that day to this the error has never been thoroughly corrected. The architect has become a man who conceives a design for a building *ab externo*, as a painter conceives the design of a picture; and very rarely indeed a man who works out his forms *ab imo*, or from the real essential necessities of the case. The idea of a man sitting down in his office to prophesy buildings of all sorts and kinds, for all purposes and all places, never occurred to any one in the Middle Ages. They did not then believe that any human intelligence was capable of foreseeing the ultimate form of 50 or 100 buildings; of drawing, measuring, estimating, and describing every detail before a stone was laid on the ground. They set to work in a very different style: one man devoted his whole life to one particular class of building, and undertook one building at a time; and, assisted by masons, carpenters, carvers, and ornamentists, each of whom had devoted his life to his speciality, and was devoting his whole time to that one work in hand, they elaborated among themselves, during a long course of years, those buildings which we now so much admire, and admire simply on account of the amount of honest, earnest, skilful thought that has been devoted to their elaboration. The one simple object that these men set before them was, how to produce the best possible building for the purposes entrusted to them with the means at their command. The last church, the last castle, or the last mansion, nearly of the dimensions of that they were undertaking, served them as a model; and with such altered conditions as their purposes necessitated they set to work, introducing as they went on every amendment in construction that had been introduced since the last was built; every improvement in arrangement, and every new form of ornament that had come to be admired in the interval. They thus went on gradually accumulating experience, till at last they reached that degree of perfection which so much astonishes us now, but which then enabled any village mason in the fen country, or in the Moors of Cumberland, or Wales, to produce buildings which our greatest and most learned men are now trying to emulate in vain.

This simple system had the further advantage that everybody understood it. If a priest wanted to build a church, a baron a castle, or a gentleman a mansion, they knew what was the model that suited them best, and they knew also where to find the man best suited for their purposes. The conditions of the problem were so simple that every one could understand them. There was no looking back to past ages, or to other countries. No learning or antiquarian skill was needful, nothing, in short, but a knowledge of what was going on around them. It was then with architecture, as it is now with ship-building, engine-making, or any other useful art. A merchant does not require any deep knowledge of the art of ship-building to know where to find the man that can build him exactly the ship or steam-vessel he may want, for carrying, or for speed. If a man wants a marine steam-engine of a certain quality he knows where to find the men who can supply it. If he requires one for pumping, there exists another class who make their speciality; and if he wants a locomotive, he knows also where to go. Thus, without any special knowledge of ship-building or engineering, any man may now be sure of getting exactly what he wants, and of the quality he requires, by applying to those men who have made it the special study of their life, and who, consequently, know all that has been done or can now be effected. It was precisely the same in the Middle Ages: priests, barons, gentry, all knew what they wanted, and they knew also where to find it; and they have found it, too, in a manner we well may envy, but hitherto have failed to compete with. With the Renaissance a new element was added to all this: besides the necessities of convenience and construction, the building, if a church, was to look like a Roman temple; if a palace, like a Roman amphitheatre, or bath; and if a villa, like what that of Pliny or Lucullus was supposed to have been. This was not the work of an architect or a builder, but of a scholar or antiquary, and his subordinate workmen knew nothing of all this; so the architect was obliged to spin the whole out of his own head before commencing, and deliver it complete to be carried out by men who had not the smallest conception of its meaning, or of the purposes the various parts were meant to subserve or express. In fact, the whole secret of the problem lies in this, that during the Middle Ages, and during the existence of any true style, men practised architecture precisely as we practise any other useful art. Precisely the same process that converted the galleys of Edward into the three-deckers or ironsides of the present day, converted the rude churches of our Saxon forefathers into such cathedrals as those of York and Lincoln,

* By Mr. James Fergusson.

or the spinning-wheel of the cottage door into the hundred-spindled mule of our cotton factories, bit by bit progress towards a well-defined end, steadily persevered in for years without ever turning to the right or left, or ever admitting of the introduction of any extraneous element. Since that time we have added the new element of the problem in architecture alone of all the sister technic arts: we have insisted that, besides convenience of arrangement, perfection of construction, and beauty of ornament, the building shall look, or try to look, like something that was done in some other clime or at some other age, and was probably for some other purpose. It is as if we were to go to Scott Russell and ask him to build us a steam-boat, but insist at the same time that it shall have three tiers of oars, and look in every respect like a Roman Trireme; or go to John Penn and order a steam-engine, but stipulate that it must be so arranged that it must look like a wind or a water mill. These orders would not be so ridiculous as insisting that an architect shall build you a museum, but shall put up in front of it a screen of columns intended for, and useful only in the temples of classical times; or shall build a Protestant place of worship in which you can neither see nor hear, nor sit with safety or comfort, and all because in the Middle Ages seeing and hearing were not important, and because our forefathers were too rude to suffer from draughts or hard seats.

The fact of an æsthetic element being introduced into the practice of any art, makes no difference in the argument; for, as before hinted, all arts, phonetic or technic, are capable of this species of development. Thus, prose is capable of being developed into poetry; narrative into eloquence; a mere photograph into a highly imaginative painting; a figure in wax-work into an Apollo Belvedere, or a Venus de Medici; by exactly the same process by which cookery becomes gastronomy, tailoring costumery, or building architecture. But each is developed into beauty within its own limits: there is no shunting of one art into the province of another to obtain this result; nor is it possible within the limits of the art itself to tell where use ends and beauty begins; and certainly no new principle is developed by the change in the manner in which the art is practised in its various phases. So far as I know, there is no instance in the history of the world of one art invading the territory of another, except in the solitary case of architecture during the last three centuries; and the experiment has been so unsuccessful that it is not likely to be repeated. If it had succeeded, the anomaly might have been overlooked, and the apparent absurdity forgiven; but, as the result is entirely the other way, it is time it should be abandoned. It is, perhaps, not too much to say that, though more money has been lavished, and more talent employed in building during the last three centuries than at any previous period, not one single building has been produced which is entirely satisfactory, and thousands which are very much the contrary; while during the three preceding centuries it would be as difficult to find a single edifice in any part of Europe which is not beautiful in itself, or which we cannot now contemplate with delight. The latter were the work of men comparatively ignorant and rude; the former of men in the highest state of civilization and refinement which the world has yet known; and this difference in result can only be ascribed to the difference in the principles on which the art was carried out during these two periods. It is high time, therefore, that architecture should recover her true position as one of the most important of the useful arts in the utilitarian stage of her development, and as the one most suited for artistic development, and perhaps the only one capable of rising to grandeur or sublimity in the second or æsthetic stage. Her true career is so grand, and her purposes are so noble, that she can very well afford to repudiate any connexion with the phonetic arts which belong to a totally different class, and need not borrow shreds from their adornment. Her own principles suffice for all her own purposes; and when these are honestly carried out, she has no rival among human arts except among the highest flights of poetic literature.

Elements of Design.

Without further preface, then, let us come to the practical point. What are the means by which a satisfactory architectural design may be obtained? The best general answer that can be given to this question is, perhaps, that which was given by the painter Opie to a young artist from the country, who, struck with the brilliancy of Opie's colouring, timidly ventured to inquire with what he mixed his colours. To this the gruff old painter briefly replied,—*Brains!* In that one word is the whole theory of architecture. If a man will only think of what he is doing, and think of that only, I defy him to produce a bad design. A vulgar man may impress something of his own vulgarity upon it; a weak man, something of his feebleness; but if the position of the art is up to the mark of the age, these will not be perceptible to the general eye. An earnest purpose-like design, pretending to be nothing but what it is—going straight to its object, and giving evidence of careful study and thought, must always be pleasing, not only to its contemporaries, but through all ages, even if neither ornamented nor ornamental; while no extravagance lavished on a falsehood can remain tolerable beyond the fleeting fashion that gave rise to it.

To descend a little more to particulars, the principles of design in architecture may be classed under four distinct heads, thus:—

1. Convenience in arrangement.
2. Economy in construction.
3. Ornamental arrangement.
4. Ornamented construction.

The two first belong, properly speaking, to the builder, or to the engineering part of the profession; and only the latter two, strictly speaking, to architecture; but unless he gets them done for him, which sometimes, though rarely, may be an expedient arrangement, no architect must neglect the former two. Indeed, the foundation of all good architecture is, that the building shall be so arranged as to meet the purposes for which it is intended in the best possible manner. This alone will not suffice to make a building beautiful, but it will go as far towards it as almost any other quality, and nothing that can be added will redeem the want of it.

By economy is meant that all the material used in a building should be so employed that the greatest possible amount of work shall be got out of it. When this precept is carefully attended to it frequently happens that a stable and elegant building may be erected with a certain proportionate amount of material, while with twice that quantity less scientifically applied, a clumsy rude edifice is all that is obtained, crushing itself by its own weight. It is, in fact, doing by reflection and science what too often is attempted by brute force. Like any other good principle, it may be carried too far, but it may safely be asserted that nothing adds so much to the charm of Gothic buildings as the scientific economy displayed in every part of their construction.

The third principle, enumerated above, is the foundation of all good architectural design, and consists in arranging the various parts of a building, or of a group of buildings, so as to be in harmonious proportion one to another, and so that each may aid every other part in producing the effect desired. By thought and care this may generally be obtained without any extra expenditure of money or materials, or with only the slightest if any loss of convenience. As such it ought always to be the principal study of the architect, and as the means by which the most permanently satisfactory results may be obtained. The fourth principle, which is the special province of architecture, ought always to be treated as an addition—something very useful towards architectural effect, but not as essential. It ought never to be allowed to interfere in any way with convenience, nor with economy of materials: its main use is to aid and refine ornamental construction, to accentuate the constructive details, and, if I may use the expression, to tell the whole story of the building in an agreeable manner.

Ornament is extremely useful in conferring on buildings a degree of elegance and richness, which, without it, it would be difficult to obtain; and it also may be made to convey an impression of wealth and magnificence which, in its absence, could only be attained by increased dimensions, or massiveness, which would be as expensive, and, in some instances, at least, less effective. Ornament is also extremely useful in altering the apparent proportion of buildings: thus, by the employment of strongly-marked horizontal lines, a building which is too tall may be reduced to proportion; one that is too low made to look nearly as high again by employing only vertical features. Buildings that from the inherent necessities of their construction look weak, may be made to appear of any desired degree of strength, and sparkling gaiety of effect be given to those that otherwise would be too massive and heavy.

Internally, the architect very often cannot control the dimensions of his apartments; but by a judicious application of ornament he may always make low rooms look higher, narrow rooms broader, and reduce long rooms to a better proportion. More than even this ornament enables an architect to give to every part of his design exactly that degree of prominence and dignity, and that class of expression which suits its position or purposes. These are all legitimate uses for the employment of ornament, and when used for these purposes it is never offensive. It always becomes so when it is employed to conceal either use or construction, or to make a building try and look like what it is not or cannot be.

Ornamental Arrangement.

In order better to explain what is meant by ornamental arrangement, let us take an example. It is proposed, for instance, to erect a barrack for say 1,000 men. The first thing, of course, is to study the economy of the regiment, and to ascertain exactly what is wanted. There must first be dormitories and living-rooms for the men—quarters and a mess-room for the officers, quarters probably for married soldiers, an infirmary or hospital, an entrance gateway, main guard and canteen, &c. If you arrange all these in a row any how, you will get a very commonplace effect. But supposing you divided your men's barracks into four nearly cubical blocks, and place them at the angles of your square, and fill up the longest curtain with the officers' buildings opposite the entrance, and let the married men's quarters and the infirmary or other offices fill up the other two. If all these buildings are well proportioned to each other, and each appropriate to its own use, you may get a very pleasing and stately effect without one shilling of extra expense. But if, on the other hand, you make the officers' quarters exactly like those of the men, as is done in this barrack,—if you make the field-officers' quarters like those of subalterns, you lose one of the principal elements of architectural expression, and the design loses all the meaning it might otherwise convey. In this instance I recommend the principal masses being placed in the angles, not only for sanitary purposes, but because in nine cases out of ten it is better architecture to accentuate the angles, than to attempt to dignify the centre. We have got into the contrary practice from the habit of using porticoes, which can be only applied to the middle of a building, but half the weakness of modern design is owing to this cause: in military constructions especially it is most prejudicial.

The above assumes that the barrack is built on a perfectly plain site, but if the ground undulates there is nothing gives so perfect an architectural result as a design suited to, and following all the accidents of the situation: no matter how irregular the result may be, the evidence of thought and design, which a motived irregularity gives, redeems any other fault; but it must be motived; irregularity for irregularity's sake is mere affectation, and ought never to be indulged in.

One of the best and most important modern examples of ornamental construction that can be quoted is, perhaps, the recent juncture of the Louvre and Tuileries by Visconti. When the latter building was erected, it was so distant that its architect never thought of making its plan range with that of the older building; and in the least artistic age of French architecture, Henri IV. joined the two by the long gallery, without ever thinking of the principles of ornamental arrangement. The consequence has been that, for more than 200 years, every French architect of eminence has tried to remedy this defect. Fifty of their plans are now exhibited, some of great ingenuity, but on the whole perhaps the best is that by Visconti, which has just been carried into effect by the present Emperor of the French. It does not remedy all the defects introduced by the negligence of the first designers, but it goes a great way towards it, and generally speaking, it produces a grand and harmonious effect, even irrespective of all ornamental details; but the Place de Concorde is still too large for the buildings that surround it, and unless it is broken up by some erections in its centre, these will always look low and comparatively mean, while a judicious ornamental arrangement would add immensely to their beauty, and give them a dignity they do not now possess.

But, besides the ornamental disposition of masses, any one building may be so ornamentally arranged as to produce the best possible architectural effect without ornament, or with only the smallest possible amount of applied decoration. The Gothic architects were the great masters in this department of art: take, for instance, Salisbury Cathedral: the windows are without mullions, the buttresses without pinnacles, and with very few mouldings, while the walls are singularly plain; yet with all this, the nave, the two tran-

septs, and the choir are so pleasingly arranged as to produce the best effect; and if you come to look closely into it you will find that the problem being given of producing a vaulted hall of a certain height, to cover a given area of floor space, it would be hardly possible to do it at less expense. The buttresses, for instance, on which the external effect mainly depends, are the most economical way of disposing of the quantity of materials required for the purpose, and the intersecting transepts the cheapest conceivable mode of roofing a great area of floor space, and at the same time of making a small building look large internally as well as externally. The Italian architects, who neglected these expedients, used, in consequence, three or four times the quantity of material which the Gothic architects employed. In St. Paul's, for instance, one of the most mechanically perfect of modern buildings, the area of the solids, as compared with the voids, is 1 to 6; St. Peter's as 1 to 4, St. Isaac's and other churches about the same; while at Salisbury, and in most early Mediæval buildings, it is as 1 to 8, and in later Gothic buildings, it generally may be quoted as 1 in 10, and in some in even a lower proportion than that. Or, to take another example, I have here a section of Westminster Abbey, showing the buttresses on the south side of the nave: nothing can be more purely mechanical than they are, but nothing can at the same time be better adapted to resist the thrust of the vaults of the aisles and nave, which, owing to the interposition of the cloister, they could not approach. A modern architect would probably have built a plain wall at right angles to the thrust, and sloping slightly inwards, have met the difficulties of the case. In so far as expense of execution is concerned, the Mediæval plan may be the most so: to cut the stone of each arch into voussoirs and to put a moulding under each flying buttress would, probably, cost from 5 to 10 per cent. more than to build a plain wall, the amount of materials and the height being the same in both cases; but to do the same amount of duty the wall in this instance would require at least a third more material, because its mass would be near its base, where there was no work to do, so that the ultimate expense would probably be greater. The real objection, architecturally, to the modern system, is that the wall would be a hideous deformity, the buttress a thing of beauty, because it is thoughtful and truthful.

There is at the present day a class of architects among the younger members of the profession who, struck with the fact that truth is one of the great, perhaps the greatest, element of architectural beauty, carry this system to excess. In their churches, the plain brickwork is shown inside as well as out, the timber-work of the roof is all shown, and not arranged symmetrically, but according to the mechanical exigencies of the case only. In dwelling-houses the timbers of the drawing-room roof are equally exposed, rudely squared, the bolts and screws all shown; the doors are plain deal; the windows heavily timbered. Notwithstanding all this, if the proportions are good, the light judiciously introduced, and you can trace the evidences of thought through the design, the effect is certainly pleasing and satisfactory, because truthful; but these men are mere builders, not architects. To produce an architectural effect a certain amount of symmetry is indispensable, a certain amount of refinement, combined with the greatest possible amount of mechanical excellence. All these can frequently be superadded without any material increase of cost; and when these are conjoined with truth of design and construction, a very perfect architectural effect may always be obtained, even without the addition of ornament. It is, however, quite a mistake to suppose that rudeness can ever be a desirable quality in modern times, or that proclaiming the fact that the mechanical have overruled the artistic elements in a design, can ever be productive of that expression of beauty we are aiming at in architectural art.*

* To be continued.

THE CONDITION OF LANCASHIRE.

THE terrible distress which has fallen on the manufacturing population still continues; and the heavy cloud which has for so long a time hung over Lancashire does not yet show its silver edge. In certain districts the number of the unemployed has slightly decreased; but we fear that the continuance of this improvement is uncertain, and we can see indications of complications which may ere long give rise to much contention and angry feeling. The workpeople complain of the bad materials which are at times put into their hands, and say that with them they are unable to work for the same amount which is allowed in charitable or parish relief. There will also, we fear, be some dispute respecting the rate of wages. Any difference of this nature would, in the present position of affairs, be attended with bad results to all.

Both men and women are getting tired of their listless idleness; and the long delay of the hoped-for good time coming, when they will be in full work again, begins to cause a certain amount of impatience and dissatisfaction. Something must be done to put them to real work. At one time we stood alone in saying this; but now others are urging it also.

The correspondent of the *Daily Telegraph*, whose reports from Lancashire have been remarkable for their truthfulness and many practical suggestions, notes that infectious maladies seem just now to be re-appearing in various districts among the poor of Lancashire. In some, scarlet and typhoid fever prevail; in others, diarrhœa and typhus fever; and in many, diseases of a cutaneous character. The latter are very prevalent amongst the females in some of the industrial schools. This is very singular; because, to all appearance, the factory-girls attending such establishments are a hundred per cent. neater and cleaner now than they ever were before. The writer says—"The re-appearance, at any rate the increase, of typhus fever, &c., in certain towns and districts, is also difficult to account for. When it first broke out the cause was plain,—destitution, bad and insufficient diet, &c. But all that has been removed. Diet has been improved in both quantity and quality: the poor are, comparatively speaking, well clad; and there is none of that destitution which originally marked the ranks of the operatives."

As we have before said, the destitution which for some time prevailed—and even now the supply of food in many instances is not sufficient—would have an injurious effect upon health; but, besides this, it will be found that the main cause of sickness is to be sought for in the homes of the people. We know that overcrowding is one chief cause; and there are, besides, those sanitary derangements, which, when the minds of men and women are troubled and filled with anxiety, food not being so plentiful as required, are sure to have injurious and even fatal effects.

The overcrowding of sleeping-rooms, in small ill-ventilated houses at night, is a sure means of producing fevers and many other disorders.

It is to be feared, also, that sufficient care is not taken to ventilate the sewing-schools, and other places in which large numbers of persons congregate. A stranger going into some of these interiors, in which 200 or 300 and upwards of women and young girls have been confined for several hours, would be surprised at the polluted state of the atmosphere. These matters require the most careful attention, for it is in such situations fevers are generated. In the months which are to come, sanitary care is almost as needful as the supply of food. At Preston, the fever is again on the increase: at Bacup it prevails severely: at Darwen, gastric fever is prevalent (several fatal cases of scarlet fever are reported); and from other parts there come unfavourable accounts.

In various districts a strong desire for emigration is shown by the operatives, and a considerable number have departed for America, and the more distant colony of Queensland. Many of the best and most intelligent of the hands are in favour of this movement; nor is this to be wondered at, when we consider the state of uncertainty which exists in Lancashire. It is feared, however, that many of the emigrants will experience disappointment, and that, when the cotton famine shall have come to an end, the skilled workmen will be missed at home.

ARTIFICIAL INDIA-RUBBER.

SOME years since we suggested that a time would probably come when essentially the same substance as india-rubber would be artificially made; and adduced such known facts as that bitumen when chemically manipulated in a certain way with sulphuric acid yielded an elastic gum very analogous to india-rubber, but unfortunately not permanent in its assumed properties; and also that linseed oil, when exposed in thin surfaces to the air, became oxidized, and very much resembled india-rubber.

In consequence of our suggestion a correspondent wrote us some time thereafter, stating that it had induced him to try to form a substitute for india-rubber or gutta percha by help of leather parings; but the result was rather crude; and besides, as we explained at the time, it was not our purpose to suggest anything but artificial modes of producing a substance equivalent to and in a manner identical with india-rubber.

Something very like the desired substance has of late been talked of as now producible by oxidizing linseed oil; and we give the following particulars as to this and another invention, extracted from a report, in the *Sheffield Independent*, of objects of interest exhibited at a *conversazione* of the Sheffield Literary and Philosophical Society:—

"In the chemical department were shown specimens of a new and valuable invention, patented by Mr. A. Parkes, of Birmingham, and called after him, 'Parkesine.' It is a compound of oil, chloride of sulphur, and collodion, and may be used as india rubber and gutta percha. In its plastic state it is easily pressed into moulds; and when set becomes hard and durable. It may be produced of any colour, and also made to imitate ivory. If this latter substance can be successfully imitated, Mr. Parkes will have accomplished what many men have long tried to do, and on which some have in vain sacrificed fortune and health. The inventor only shows the articles as the work of an amateur, and to give some idea of the capabilities of the material, which he says can be produced in quantities at 1s. per lb. Allied to this is another substitute for india rubber,—'Campticon,' an invention of Mr. Frederick Walton. This remarkable substance is formed by the oxidisation of linseed oil. Plates of glass are dipped into linseed oil, and allowed to dry. The plates are again dipped and dried, until a sufficient film has accumulated, and then it is removed. In describing his invention, Mr. Walton says:—'I soon found that by crushing the solid oxidised oil obtained in sheets, as described in my patent, and working it thoroughly in hot mixing rolls, I produced a substance which required only the cohesive nature which exists so strongly in india-rubber. The addition of a small proportion of shellac soon gave that which was wanting; and I found in my power a material singularly like caoutchouc when worked into dough; and which could be rolled on to fabrics in the same manner and with the same facility. Pigments could easily be added to give colour, and the addition of the resins gave other or rather varied proportions of adhesion, useful as affording the means of uniting fabrics as by rubber. Fibre, whether flock or cork, mixed in and rolled into sheets, gave me samples of kamptulicon and other floor-cloths. Not only has this singular product been thus assimilated to rubber for uses on fabrics, or combined with fibre for floor-cloths; but, still more strange, it is capable of being worked with pigment and vulcanised exactly as india-rubber has been described to be, and forms a hard compound like vulcanite and ebonite, excepting that the sulphur is not necessary. It will readily be seen how valuable a substance is here represented; for while it possesses in so great a degree all the qualities of india-rubber, it may be produced at a much less cost. The specimens which Mr. Walton has sent for exhibition show the material in its different stages of manufacture, from the films that are removed from the glass to the masses ready for manufacture into any of the articles above enumerated."

We may here note that in the same exhibition was what is called an "interesting novelty" in the form of a machine for copying sculpture. But considering how many years such a machine has been in use, as witness the successful copies of sculpture made by it for the Art-Union of London, the novelty of such a machine is a mistake. It is thus described:—

"The plan of its operation is simple. The bust or statue to be copied is placed on a revolving pedestal; and on a corresponding pedestal is placed a block of stone, roughly cut into a shape somewhat resembling the work to be copied. Over the copy and the block is suspended a lever, on one side of which is a blunt pointer, which touches the copy, and on the other a graving tool which touches the block to be cut. As the machine works, the block is cut down until the pointer touches the copy; and as it follows the variations of the one the graving tool makes corresponding shapes on the other, until a faithful and perfect tracing is obtained. The machine was worked by a small model steam-engine."

BARBER SURGEONS' HALL.

THE quaint and picturesque entrance to this hall, which is so well known to the wayfarers along Monkwell-street, is now nearly hidden from view by a huge board, on which is announced the intention of disposing of a considerable part of the premises on a building lease for 99 years. The houses Nos. 33, 34, and 35, the frontage in Monkwell-street, in part of which is the gateway, are in this way advertised for sale; also a portion of the courtyard in the rear, and the passage leading thereto and the greater part of the Barbers' Hall, kitchen, scullery, and outbuildings, having a street frontage of about 83 feet, by an average depth of 116 feet. In some parts the premises extend back to a depth of 135 feet.

The carving above this doorway, illustrated in one of our earliest volumes, is bold and masterly. It is to be hoped, therefore, that in carrying out any alterations, it will be preserved. The large head in the centre, and two little side figures expressive of infancy, are very good, and the arms of the company above are well cut and emblazoned. The large hall has great interest, for part of it is formed by one of the only two remaining circular bastions of the ancient city wall. The outer portion of this defence is in Cripplegate churchyard.

This relic, standing as it does much out of the way of every one, should under no circumstances be demolished.

DOINGS IN DENMARK.

WE glean some information interesting to our readers from the *Danmark*:—One of the final measures of the Danish Parliament was to pass several Railway Bills, whereby the net of State railways may be regarded as settled for a long time. This railway net spreads over North Jutland and Fyen, and consists of a trunk line from Aalborg, in the north of Jutland, over Aarhus and Fredericia to Vamdrup, on the Slesvig border, and a branch from Aarhus, over Viborg, to the west of the Limfiord. On Fyen the line will run from Nyborg, over Odense, to Strib, opposite Fredericia, in Jutland. The connexion between the Sealand line and the Fyen line, and between this and the Jutland will be by means of a steam ferry for goods and passenger waggons. As soon as a similar communication is established between Helsingborg, in Sweden, and Elsinore, in Sealand, the whole Scandinavian North will have a satisfactory iron route to the European continent. The execution of this railway-net has been intrusted to Sir Morton Peto. Its whole length is about 300 English miles, and its total expense about 16 millions of Danish dollars.——In Copenhagen the old watchman, with his long coat and his "morning-star," is to "move on" and make room for a brand-new police-force, partly arranged on the English model. On the 1st of April this new city-guard will commence its duties, according to an Act just passed in the Danish Parliament. The capital, with its 160,000 inhabitants, is divided into six districts, each with its station. The police director and his two superintendents are supported by six inspectors, twenty-one sergeants, and 210 constables. London, with its 2,500,000 inhabitants, has about 5,000 policemen, or 1 to every 500 souls. Copenhagen has only 1 to every 760.——The German Court-painter Lauchert, who was despatched to take the portrait of H.R.H. the Princess Alexandra, has now completed the work.—— The Danish manufacturers are highly gratified with the compliments they have received at the Great Exhibition, and the many sales they have effected. This is particularly the case with the porcelain works of Bing & Gröndahl. While the Exhibition was open they had a couple of thousand orders, and they still continue to receive fresh ones.——The first stone will soon be laid of the New English Episcopal Church, in Stockholm. It is to be in the English Gothic style, 80 feet long and 40 feet broad. The outside will be of dressed sandstone, but the interior will be faced with Swedish marble.——The Danish landowners, among other costly gifts to the Princess Alexandra on occasion of her marriage, will present her with a marble statue by Jerichau,—"Our First Parents before the Fall." Eve, suddenly sprung into being, is gazing wistfully on Adam, who sits on the earth, and on whose left arm she is reposing. The clay-model is now ready. The marble itself will be finished in a couple of years. As a state wedding-gift the Princess is to receive 100,000 Danish dollars, of which about 21,000 will be asked at the hands of Holstein, while the rest will be paid by the Danish realm.

FROM ANTIGUA.

THE first division of the new market at Antigua has been opened to the public, and has been attended with so much success that it is contemplated to complete the work immediately. It was opened with all due ceremony by the Governor Hamilton and authorities under a beautiful and impressive invocation from the Lord Bishop of the diocese. The people assembled outside the City of St. John, and walked in procession with the articles for sale on their heads, preceded by bands of music and flags: the building also was decorated with flags and the day was kept as a public holiday. St. Kitts has taken the initiative for the establishment of a market-house to supply a long existing want; and probably other colonies, profiting by their example, will carry out such necessary works, particularly as they have good sanitary and civilizing tendencies.

Under the new contract with the West India Packet Company it is intended to make Antigua the first port touched at by the Ocean Steamers, where all the mails will be left for the islands north and south, and they will proceed on to Jamaica, which, it is stated, is to be the head depôt. The mail service between England and the West Indies will thus be accelerated many hours, and trade and commerce be materially benefited.

The harbour of Falmouth, Antigua, has been surveyed, and found to have a sufficient depth of water. It has 70 acres with a depth exceeding 4 fathoms, and 200 acres with a depth exceeding 3 fathoms, which may be easily increased,—advantages which few of our British harbours possess. Some opposition to the change is threatened, as the picturesque situation and the many claims and allurements of St. Thomas have taken a deep hold on the minds of many individuals, immortalized as they have been by the graphic and sentimental pens of N. P. Willis and others; but I trust, says our correspondent, the British Government are not to be led away from a sense of public duty by the voice of such charmers, charm they ever so wisely. Besides Antigua is a British colony; and in the event of war the harbour could be effectually protected from the commanding heights of the ridges, Monk's Hill, &c.; and with a few guns of long range every approach could be vigorously defended. When the new routes of packets are established we shall shortly, perhaps, have the electric telegraph wires laid to connect the islands together, so that early information may be conveyed both for Government purposes and those of trade and commerce. The advantages to all would be inestimable.

MACADAMIZATION AND MUD.

THE justly-severe remarks upon the filthy state of the thoroughfares of the metropolis which have appeared in your pages from time to time, pass unheeded; and it seems as though nothing short of an indictment will rouse any of the authorities from their disgraceful apathy. I traverse a good portion of London daily, and I have no hesitation in saying, as I did a year ago, that whenever a rain-fall occurs unaccompanied by wind, bad as it is generally, in no locality is the mud deeper than between Cockspur-street and Westminster Bridge, at the threshold of the Metropolitan Board of Works and all the Government Offices. The mud is not scraped up sufficiently quickly to prevent its conveyance to the trottoirs by pedestrians; nor, when it is scraped to each side of a street, is it carted away with sufficient promptness; and therefore horses with broad feet, and vehicles of all kinds, splash it on to the pavement. Macadamization appears to me to be wholly unfitted for heavy and increasing traffic; but if this method of paving be continued, the nature and quality of the stone used should be most carefully investigated. I beg leave to suggest to the authorities, parochial, police, and ministerial, that every occupier of a house or shop be enjoined to have his or her portion of the pavement thoroughly cleaned by eight o'clock every morning; that paid crossing-sweepers, in some distinguishable dress, be placed at every required crossing, and that overseers be appointed to keep them up to their work; that the surface-drains (now nearly useless) be maintained in an efficient state, so that the liquid mud may flow off; that the streets be scraped early every morning; and that the contracting scavengers be compelled to remove the mud from each side without delay. The employment, at moderate wages, of many of those now idle and begging, would confer immense benefits upon the community, at a small comparative cost. IMPROVER.

DESTRUCTION OF THE THEATRE ROYAL, GLASGOW.

THIS building has been totally destroyed by fire. From the first discovery all hopes of saving any part of the theatre or properties were given up, and the exertions of the firemen were mainly used in preventing the fire from extending to the surrounding buildings. The flames in the theatre did not subside until almost nothing remained to burn. The walls were left standing, but the back one was found to be considerably off the perpendicular, and it was thought would have to be pulled down. The north one was found to be still more insecure. Theatres in Glasgow seem fated to destruction by fire. The Queen-street one was burned down: that of Anderson, the "Wizard of the North," shared the same fate: so did David Prince Miller's Adelphi Theatre; and now the Theatre Royal has been destroyed. The wardrobe, library, armoury, and "properties" generally of the Theatre Royal are said to have been the richest, most extensive, and most varied of any theatre out of London. The theatre was about 50 feet high, 50 feet broad, and 70 yards long. It was raised in the latter end of 1839, on the site of the old theatre, in consequence of the felt insufficiency of the then existing theatre accommodation.

Mr. J. H. Alexander was the proprietor.

The building and decorations, including site, were estimated at from 20,000*l.* to 30,000*l.* The property in it belonging to Mrs. Glover is valued at from 8,000*l.* to 10,000*l.* The building is insured for 8,000*l.* Mrs. Glover's property is only insured for 3,000*l.*

THE LATE FATAL FIRE ACCIDENT AT THE PRINCESS'S THEATRE.

FROM the proceedings at the inquest on the poor little self-sacrificing ballet-girl, Miss Sarah Gibson, whose not very romantic theatrical name was Smith, it appears to have been from the sputterings of "blue fire" that the first accident, to Miss Hunt, occurred. Mr. Harris said that Miss Gibson prided herself on the expansion of her skirts; but it was evident that this had not much to do with the accident arising from her generous and successful endeavour to save the life of her companion. Moreover, Miss Gibson's interference at all would have been unnecessary had the theatre authorities provided beforehand the usual means and appliances in such cases; appliances whereby Miss Hunt's life had been saved on a previous occasion at the Surrey theatre. Mr. Roxby, who appeared with his arm in a sling, merits all praise for his gallant exertions.

Dr. Lankester's charge to the jury on this and other cases of accident to ladies by fire, contains remarks which merit reiterated quotation. It was most important, he observed, that attention should be directed to the character of the dresses which these young ladies wore, with a view to make them less inflammable; and not only should the same care apply to these young ladies, but to ladies in private life. It was a circumstance to be deeply regretted that fashion was carried out at the risk of life; and he wondered how many valuable lives would be sacrificed before they could find one woman who would give up the use of a certain article of dress, known to be so thoroughly dangerous. If the female sex would wear these outrageous dresses, care should be taken to render them uninflammable. There were several simple processes by which this could be accomplished; viz.,—phosphate of soda, tungstate of soda, and sulphate of ammonia: either of these would effect the object at a very small expense. Phosphate of soda was the cheapest, but that combined with tungstate of soda was the most effective. Out of 613 inquests which he had held since he had been coroner, 23 cases had arisen from burning, and 18 from clothes catching fire; and if they had been held in the same ratio throughout England, the jury would see how large a proportion there were in the country of persons who perished annually from this cause. He did hope, now their attention had been thus publicly aroused, that managers of theatres would insist that no dresses should be worn by their *corps de ballet* and others which were not rendered uninflammable by some of the processes he had mentioned, as they were bound to protect those employed by them from their present danger.

The jury ultimately returned a verdict "That Sarah Gibson, otherwise Smith, died from the effects of burns by the igniting of her dress at the Princess's Theatre with fire, and that such ignition was accidental." They then appended the following:—"The jury wish, also, to express their opinion that sufficient precautions were not taken at the Princess's Theatre to extinguish any accidental taking fire of the clothes of the *corps de ballet*. They also strongly urge the necessity of rendering articles of linen and cotton clothing fire-proof by the manufacturer and the laundress."

The other sufferer is stated to be progressing favourably towards recovery, but is much affected by the fatal result to her less fortunate companion.

A hint as to what the sufferer should do when once on fire in a private dwelling will not be out of place. It is to ring the bell violently, if no one be present, and roll on the carpet. The flame will then rise from the body instead of up to it; and as half the poor creatures die from prostration, stimulants should be given instantly — either wine, brandy, sal volatile, or even, in some cases, laudanum diluted. Servants, too, should hasten to throw flour over the wounds till medical aid can be procured, and the things should be taken off, of course directly. For small burns, grease of any kind is a good application.

STAGE LIGHTS OF THEATRES.

AT the annual general assembly of the proprietors of Drury Lane Theatre, held last week, the architect of the proprietors, Mr. M. Nelson, said in his report:—

"The order given last season by the committee, to have every exposed gas burner throughout the building protected by a wire guard, has been most satisfactorily carried out. Formerly there were nearly 300 exposed gas lights: now every one has a wire globe around it, and the additional protection of a cover over the burner where necessary. The usual accidents arising from exposed gas burners cannot therefore take place, and even cotton or gauze may pass over gas lights so protected without danger.

As public attention is at this moment much directed to the subject of accidents by fire, I beg to refer to another precaution that has been adopted by order of the committee, viz., the introduction of hand-pumps. This simple contrivance consists of a common hand-pump in a bucket of water. These are distributed over the theatre, ready for use at any moment. The late Mr. Braidwood prized them so highly that no engine was allowed to leave its station without one; and numbers of fires have been extinguished by the brigade in using hand-pumps alone.

I cannot conclude my report without mentioning that the order of the committee, with reference to keeping open every door of public entrance and exit throughout the building during the performance, has been carried out to the fullest extent."

"I beg to add, that it may be of some public advantage to state the comparatively trifling cost of the precautions referred to that the committee have taken against accident by fire, the principle being applicable not only to theatres, but to every shop, warehouse, stable, and private house.

The expense of a galvanised wire globe, of the most useful form, is 2*s*. There is no reasonable limit to its durability; it cannot be broken, and never requires painting.

The talc covers cost from 6*d*. to 1*s*. each, and are as applicable to glass as to wire globes.

The wire guards and covers are as suitable to candles as to gas lights.

The cost of a hand-pump and pail of the best kind, with hose complete, is about 2½ guineas. No building of any description should be without one. It should be placed on the landing of every dwelling-house, and may be used by any maid-servant.

If all exposed lights and open fires were properly guarded, and a hand-pump provided, a large proportion of the accidents by fire would be prevented."

WORKMEN'S HALLS.

Southampton.—As we have before noted, there are three of these new institutions already established in Southampton. The first *soirée* in connexion with them has just been held at the new Hartley Institution under the presidency of the Earl of Carnarvon.

Wandsworth.—The inaugural meeting of the Wandsworth Working Men's Club was held last week. The proceedings commenced with a well-attended tea meeting held at the club-house, The Plain, Wandsworth, which was followed by a public meeting in the Spread Eagle Assembly-rooms. The chair was taken by Mr. G. F. White, who, after prayer had been offered by the Rev. Hugh Allen, D.D. (rector of St. George's, Southwark), gave an account of the circumstances connected with the formation of the club, and its objects and proposed mode of government. Mr. George Cruikshank then addressed the meeting in a forcible speech. Other speeches were also delivered. The club premises consist of a recently vacated public-house, containing the various rooms requisite for the purposes of the club, and with skittle-grounds, &c. attached. The lease was purchased by the liberality of ten gentlemen, each of whom lent 25*l*., without interest, to raise the amount needed. About 160 workmen have already enrolled themselves as members.

Scarborough.—A public meeting has been held in the Town-hall, Scarborough, for the purpose of forming a Working Men's Club. The chair was taken by Sir J. V. B. Johnstone, bart., M.P. The meeting was large and enthusiastic. A considerable sum of money was subscribed, and a provisional committee was appointed, with Mr. Tugwell as secretary. From the feelings manifested by the working men of Scarborough the club is considered certain to obtain several hundred members as soon as it gets into working order.

Faringdon.—A Working Men's Club was also formed lately at Faringdon under the auspices of the Working Men's Club and Institute Union. The Earl of Radnor and the local gentry generally subscribe liberally to its funds, and 200 working men have become members. So great is the success of the institution that it has outgrown the limits of the premises originally taken.

Miscellaneous.—It appears that upwards of 130 applications have been received by the committee from almost all the important towns in the country, including Liverpool, Ramsgate, and Cardiff, where halls are being formed on this model. Several of the railway companies have also taken a similar plan in hand.

THE RUINS IN THE STRAND.

THE pedestrian who traverses the ancient highway of the Strand in the month of January, 1863, will find that many changes have "come o'er the scene." From the days of the Maypole, the foot-ball, and the pastimes of old London, we have come suddenly into the midst of the frolics of the new; and wherever we go, whichever way we turn, gigantic railways, hotels, and music-halls strike our eye. Three examples of these changes are pointed to by a writer in *Notes and Queries*; and we quote his remarks:—

Hungerford Market.—Upon its site once stood the palatial Hungerford House, the town residence of the Hungerfords of Farleigh Castle, Wiltshire, and the last of whose race, Sir Edward Hungerford, having squandered his fortune, obtained from Charles II. his royal charter for converting the site of the house and grounds into a market, and endeavour by this means to retrieve his fortune. This was in 1681. In 1685, Sir Stephen Fox and Sir Christopher Wren were proprietors of the estate, in the centre of which was a lofty hall, with a bust of one of the Hungerfords. But the market did not prosper: it remained till about thirty years ago, when Sir Thomas Tyrwhit, having set forth a project for rebuilding it in 1824, the second structure was commenced from the designs of Mr. Charles Fowler, upon the three acres and a quarter of ground, and was opened 2nd July, 1833, after costing 97,000*l*. This structure must be known to nearly all, and it therefore suffices to say, that the Market Company, after paying off in full the debentures and borrowed money, and returning to the shareholders 79 per cent. of their advances, sold the site of the market, as well as Brunel's Suspension Bridge, to the Charing-cross Railway Company, who thereupon, by means of public auction, sold the building materials, &c. of the hall (erected in 1851), the shops, with the stone columns, and surrounding houses in Villiers-street, Hungerford-street, and adjoining buildings, and upon the site commenced erecting (query) a railway terminus. It is this railway that has destroyed the happiness of, and sent adrift, St. Thomas's Hospital, and it is this railway that causes the fine bridge of Brunel's to be transported to Clifton.

Exeter Change.—The rise of the Strand Music Hall Company has caused the fall, not too soon, of Exeter Change. The site once occupied by the parsonage-house and garden of St. Martin's, and subsequently by the mansion of the Cecil family, was, in the reign of William and Mary, the scene of the erection of the first Exeter Change. Through troubled times, when the poet Gray and Lord Baltimore lay here in state; when Thomas Clark amassed here half a million, and Cross's Menagerie frightened horses in the Strand, Exeter Change struggled on, and it was not till 1829 that it was entirely destroyed; but on its site * was erected the well-known arcade, into which the jovial *Punch* oft paid a visit; and, lamenting on its deserted look, sounded a note about its ill-paying prospects. But its dozen shops continued deserted; its power of attraction had long fled; and when Messrs. Glasier & Son, on December 10, 1862, sold the building materials and fittings in 130 lots, for the purpose of clearing the ground for the Strand Music Hall, one and all firmly believed that a more profitable work would arise from its ashes.

Lyon's Inn.—Upon about half an acre of ground, and situate between Holywell, Wych, and Newcastle streets, Strand, has stood for hundreds of years Lyon's Inn, an inn of Chancery, an appendage to the Inner Temple. From the year 1420 to the year 1862, the site has been tenanted by those "learned in the law," although of late years these gentlemen have visited it but seldom; the last mortals on the spot clinging to the place with a despair brought on by long association with the secluded nook. Taking its name from the sign of an hostelry, "The Lyon," it, as an inn of Chancery, had for a reader, in 1578, none other than Sir Edward Coke. The hall was erected in 1700, and it had "once upon a time," many trees, and a sun-dial,—the latter shorn of its gnomon and figures in 1828. A very well-written article will be found on this subject in the *Illustrated London News* of December 27. But if Lyon's Inn is dead, a tablet to its memory remains, for in one of its attics was annually collected the materials for the "Post-office London Directory," when the size of that volume was not to be compared to the 2,574 pages of the Directory of to-day. And close handy lived Philip Absolem, the antiquary, who so ably assisted Mr. Brayley in his "History of Westminster Abbey." But the inn having decayed, the Strand Hotel Company (capital 100,000*l*.) took a lease of the ground for ninety-nine years, with power to purchase the freehold; and on December 2nd, 1862, and two following days, there were sold, in 284 lots, the furniture, fittings, and building materials of the hall, of Nos. 2 to 8, Lyon's Inn, and two houses in Holywell-street, being the first clearance sale; the carved stone lion, and the dated shield (1700) on the hall front, being included in lots 204 and 205. Thus has fallen Lyon's Inn!

T. C. N.

* This is not quite correct. Exeter Change was farther west, and in the Strand.—ED.

PLYMOUTH WESLEYAN CHAPEL COMPETITION.

SIR,—I send you a letter addressed by me as honorary secretary of the Alliance, to the managers of the Plymouth competition, and shall be obliged by your inserting it in the *Builder*:—

SIR,—I beg respectfully to call your attention to the conditions of the competition for a Wesleyan Chapel and Schools, which are in some respects unsatisfactory. I have the honour to be the honorary secretary of the Architectural Alliance, which includes Architectural Associations in every part of the United Kingdom, the great majority of architects being members; and as one of its principal objects is to discourage competitions of which the conditions are unsatisfactory, I am not incorrect in stating that as the conditions now stand, few, if any, respectable architects will compete.

I assume that your committee wish to do only what is regular and fair, and that if informed as to the objectionable conditions, they will not object to alter them. The objectionable conditions are, first, that more drawings are required than is usual or at all necessary, to clearly show a design. The necessary and usual drawings are,—Ground and gallery, or upper floor plans, two sections (longitudinal and transverse), of each building, and two elevations (side and end) of each building. The plans of foundation and drainage and large scale sections of roofs, &c., and two additional elevations, are quite unnecessary to show the design, and would give much extra labour to competitors without any advantage to either them or the committee.

Secondly. A full and explicit specification is quite unusual and unnecessary. Such a document can only be properly prepared after all contract and detail drawings are finished. A brief description of the building mentioning the principal materials to be used would be quite sufficient, and all that is usual.

Thirdly, the *chief* objection to the conditions is to the clause requiring the architect to whom the premium is awarded to furnish all requisite working drawings, and specifications, &c., and conduct all correspondence for 50*l*. additional. I cannot but think that this must be an error, as it is practically requiring the architect to superintend the carrying out his design for one fourth the proper commission. Assuming the premium of 50*l*. to pay for the "*design*," the proper and usual charge for performing the services above mentioned, with an occasional journey (for which of course travelling expenses are allowed), is 200*l*. additional to the premium, or 5 per cent. in all.

Fourthly. I would suggest that perspective drawings be allowed, if only in *outline*, and not in frames, as they show a design far better than any geometrical elevations can do.

Hoping that you will reconsider the above points, and issue fresh copies of the instructions, with the objectionable points erased, I have the honour, sir, to be, &c.

John Hill, esq., Plymouth. J. P. PRITCHETT.

The objections to the conditions sent forth in this case have already been fully shown in our pages, with our own opinion on the subject; but we insert the letter in compliance with the request of the writer. It will probably raise a question apart from the competition very properly objected to; but reference to this will be better made on another occasion.

THE METROPOLIS GAS ACT.

SIR,—As you have taken some interest in the gas question, especially as regards the metropolis, I have made up my mind to address a few observations to you on the subject of the Metropolis Gas Act, 1860, and the misrepresentation of which it has lately been the subject at recent meetings of the City Court of Sewers.

It may be necessary first of all to explain that the authorities of the City of London, for reasons best known to themselves, kept entirely aloof from, and took no part whatever in, the proceed-

ings, relative to the supply of gas to the metropolis, which took place in Parliament during the years 1858, 1859, and 1860. Had the City of London come forward in a manly, liberal spirit during the protracted inquiries of those years, extending as they did over four sessions of Parliament, it is possible that the Metropolis Gas Act might have been considerably modified, and the companies supplying the City prevented from raising their price from 4s. to 4s. 6d. per 1,000 feet. The committee sitting on the Metropolis Gas Bill would have heard the arguments of the City against the permissive rise of price, and the whole question would have been discussed as to the comparative value of the gas supplied in the City under the provisions of the Great Central Act and that which was to be supplied in future under the Metropolis Gas Act.

As there has been a great deal of misrepresentation on the subject of this change in illuminating power, I wish to explain in a few words the real nature of the change.

According to the Great Central Act, the illuminating power of the gas supplied before the passing of the Metropolis Gas Act was equivalent to 10½ sperm candles, at a price of 4s. per 1,000 feet, or 4·57 pence per candle. The standard to which the gas has been raised is that of twelve sperm candles, for which the companies now insist on charging 4s. 6d. per 1,000 feet, being at the rate of 4·5 pence, or 4½d. per candle. It is difficult to perceive how the consumers of the City are injured by this change, inasmuch as the gas required to produce a given amount of light absolutely costs less now than it did before the passing of the Act, and this notwithstanding the rise of 6d. per 1,000 feet in the price of the gas. Those who complained so loudly of the increased price forgot at the same time to notice the increased illuminating power, or, in other words, the increased value of the gas. So much for the facts. There is, however, another point of view from which this matter may be considered, and it is this:—Although twelve-candle gas is worth to the consumer 6d. a 1,000 feet more than gas of 10½ candles, it by no means follows that it costs the company 6d. a 1,000 more to make the superior gas. The fact is, the extra expense to the company, as was proved abundantly before the Metropolis Gas Committee, is less than 1½d. per 1,000 feet, or less than 1d. per candle. Hence the question becomes whether companies are really justified in charging an addition of more than *three halfpence per* 1,000 *feet* for supplying twelve-candle gas instead of 10½. If the authorities of the city of London had come forward in a practical and business-like manner in support of this principle, we should never have heard of the recent rise in price, and we should have been spared the infliction of all that monstrous absurdity of statement which has characterized the speeches on this subject in the various City conclaves.

To return, however, to the more immediate subject of my letter. The City took no part in the Metropolis Gas Act; instructed no Parliamentary agents; appeared by no counsel; and in due course escaped payment of the miserable pittance levied rateably on other metropolitan parishes and districts for the expenses of the Act. Happy, fortunate, prudent City of London! But, in the midst of the congratulations which this splendid policy gave rise to, the City of London found, to its great surprise, that it had been caught in the meshes of the Act so far as to make the City liable to its provisions, although not liable for the expenses of procuring the Act. There is probably some anomaly in the co-existence of these conditions; but as this is a dry legal question, I do not at present discuss it.

The whole of the companies supplying the metropolis, finding themselves bound to supply 12-candle gas, and being allowed to raise the price, under certain easy conditions, where it did not exceed 4s. 6d. per 1,000 feet, those supplying the City availed themselves of the permission, and increased their price from 4s. to 4s. 6d.

But what has been the operation of the Act in other districts? The Imperial Company, supplying twice as much gas as all the three City companies put together, has had its standard raised from that specified in the Act of 1854 (the same as the old City standard) to the high standard of the Metropolis Gas Act, and yet has made no increased charge to its numerous customers.

It is not too much to assume that the illuminating power prescribed in the Acts of the Great Central and the Imperial companies was the ruling standard all over the metropolis. Now, the price has nowhere been raised except in the City, so that everywhere the consumer has gained an increase of light equal to 15 per cent., and may make a corresponding saving in his gas bills. Nay, the results go far beyond this, for in less than two years after the passing of the Act two large companies (the Phœnix and the South Metropolitan) have successfully reduced their prices, and with others will probably soon come to 4s., in compliance with the restrictions which limit their dividends. I have shown before that these large and sweeping reductions and this considerable increase of illuminating power when converted into a money value are equivalent to a clear boon of more than 200,000*l.* a year to the gas consumers of the metropolis; and I deny that the City of London has sustained any real injury from the Act, although the consumers there have certainly not reaped the same proportionate benefit as those in other parts of the metropolis. For this, however, they have only to blame themselves and their bad management. The City of London, however, has another great grievance, namely, the extortionate prices demanded by the gas companies for their public lamps. Nothing can be more unjust or unreasonable than the pertinacity with which this grievance is attributed to the Metropolis Gas Act. The Metropolis Gas Act is no more to blame for this than the man in the moon. It has nothing whatever to do with it, however it may serve the purpose of officials to shift the burden from their own shoulders, and to impute to others blame which should be laid on themselves. The Metropolis Gas Act, far from encouraging extortions on the part of gas companies, expressly restricts them, and affords adequate and easy means of meeting them.

Let the City authorities take the Metropolis Gas Act in their hand, and by way of illustration confine themselves to the public lighting clauses alone; see the admirable provisions for compelling companies to supply the lamps by meter; restrictions against charging more for public lights than the lowest price charged to any private consumer; and above all, the power given to local authorities, the Commissioners of Sewers amongst the number, of settling any disputes as to price or other matters by arbitration. By adopting this course, and exercising only an ordinary amount of patience and caution, they will avoid errors such as they have lately made; and they will find that the Metropolis Gas Act contains more useful provisions than any which have been secured for many years through the imperfect though costly legislation achieved by their own legal skill. Witness the failure of their last Parliamentary contest, when one of their own companies, the City of London Gas Company, was allowed to perpetuate the fearful nuisance of their works in the heart of the City under the very noses of the Templars, and to become, in a year or two later, one of the greatest stumbling-blocks in the way of carrying out that great public work, the Thames Embankment. SAMUEL HUGHES.

CLAIM FOR COMPENSATION FOR DAMAGE BY CONTRACTORS' HOARDING.

ROBERTS *v.* BRASSEY AND OTHERS.—SHOPKEEPERS AND THE MAIN DRAINAGE WORKS.

THIS was an action (tried in Court of Exchequer, before Mr. Baron Bramwell), to recover compensation in damages for alleged injury done to the trade and business of the plaintiff by reason of a hoarding erected by the defendants, who are contractors for one of the sewers in connexion with the main drainage of the metropolis.

The defendants pleaded not guilty; and, secondly, that they were justified in constructing the hoarding under the Metropolitan Board of Works Act.

Mr. M. Chambers, Q.C., and Mr. Quain were counsel for plaintiff; and Mr. Coleridge, Q.C., and Mr. Welsby for the defendants.

The plaintiff was a clothier, carrying on a retail business in Shoreditch, at the corner of Church-street; and the defendants were the well-known contractors, who had contracted to make a main sewer from Clerkenwell to Old Ford. In May last the defendants commenced excavating the ground in Church-street, opposite the plaintiff's shop, and for the purpose of the works put up a hoarding which extended 14 feet into Shoreditch. It was 6 feet high, and extended over the footpath, leaving only a space of 3 feet 6 inches between it and the shop front for passengers. Within the boards there was a steam-engine, a tramway, barrows, planks, and the usual plant of a sewer contractor. There was also a large heap of paving stones 15 feet in length, and 5 or 6 feet high immediately before the shop, and it covered a part of the pavement. In consequence of the hoarding being so near the shop, the plaintiff said persons could not stop to look at the window, where the goods were exhibited, without being run against and jostled by passers-by, and thus being compelled to walk on. The plaintiff also alleged that the hoarding was unnecessary, and negligently and improperly constructed, and had been kept up an unreasonable time, viz.—till September. He also said that during the Exhibition of 1851 his retail trade greatly increased owing to the number of country people who came to town by the Eastern Counties Railway, and that he anticipated a similar increase last year, but in consequence of these obstructions the business fell off, and he had sustained a heavy loss, which he estimated at more than 1,000*l.*

Mr. Coleridge, on the part of the defendants, characterised the action as unprecedented, and said if contractors carrying on works of this kind under the powers of an Act of Parliament were to be liable to an action by every single shopkeeper or householder in front of whose house it was necessary to erect a hoarding, great pubic improvements would be impossible. He contended that the works opposite the plaintiff's shop were conducted in the proper manner, and as speedily as possible, and that all unnecessary obstructions were avoided.

Evidence was then given to show that the hoarding was erected on the 17th of May, and cleared away on the 12th of July, when the roadway was reinstated; that the excavation was made in the proper way by means of "stages and lifts," and with every speed consistent with safety.

Mr. Joseph W. Bazalgette, the engineer in chief of the Metropolitan Board of Works, said he designed and superintended these drainage works, and that they had been executed entirely according to his plans. The excavation in Church-street was a very difficult piece of work, in consequence of the nature of the soil and the narrowness of the street, where the houses were badly built and the traffic very considerable. The hoarding was put up at the expense of the contractors, and they were required to construct it, on account of the cramped nature of the street, for the protection of the public. If there had been no hoarding, the paving stones and earth would have got on to the pavement and prevented persons passing freely. He added that the works were conducted in a proper manner and with proper speed, and that in such works it was necessary that the contractors should have all their materials on the ground.

The jury, without calling upon the judge to go over the evidence, found a verdict for the defendants.

THE ROUND TOWERS OF IRELAND.

IN reference to the interesting paper in the *Builder* of January 31st upon this subject, those of your readers who have not access to the authorities quoted by Mr. Westropp may obtain some further insight into the subject by referring to the article "*Lanterne des Morts*," in M. Viollet le Duc's "Dict. Raisonné," in which some of these French structures are figured; which appear to corroborate Mr. Westropp's view of their analogy to the Irish round tower.

We have, as far as I am aware, nothing strictly analogous to these towers in England; but the assumed later development of the custom, as seen in the Cemetery Cross, is common in many parts of England. In Somersetshire these crosses are all but universal, either in the churchyard or in the high road near; and there are also remains of some of them erected in the high road far from any church or cemetery.

Can any of your archæological readers throw any light upon this subject from our own point of view? Were these crosses supposed to have any efficacy in laying the restless spirits of the departed? or were they merely open-air preaching-stations? Was their use associated with the church or with the cemetery? Any independent evidence touching the use of our own crosses would be valuable in confirming, or otherwise, the assumed relationship between the *Lanterne des Morts*, the round towers, and the cemetery crosses. J. F.

THE SURVEY OF NORTON PARISH.

A SOMEWHAT curious dispute has arisen as to this survey. On the 14th November, 1860, the guardians of Ecclesall Union contracted with Mr. Reuben Chapman, surveyor, to make a complete survey of the parish of Norton for a new assessment, and to deliver to the guardians a large sheet plan, with book of reference and smaller sectional plans to correspond, &c., for the sum of 9d. per statute acre, the entire cost being 163*l.* The contract provided that the plans should be drawn "to the satisfaction of the Poor Law Board." The plans and book of reference were delivered in January, 1861; and some time afterwards, Mr. Chapman applied to the guardians for a payment on account. Although the plans had not then received the sanction of the Commissioners, the guardians consented to Mr. Chapman's application, and he received a cheque for 80*l.* The plans were sent up to London for approval, and the Commissioners requested the guardians to obtain Mr. Chapman's "field books," to test the accuracy of the plans. Mr. Chapman refused to send up these books, alleging that he had fulfilled every condition in the two schedules annexed to the contract; and that as the production of the field books was not mentioned in that document, he had a perfect right to refuse to accede to the request. The matter stood thus when the auditor refused to allow the payment made to Mr. Chapman, and surcharged the three guardians who had signed the cheque with the amount. The Commissioners, when applied to, said that the payment made was clearly illegal, because, by the terms of the contract, their approval was necessary before any money could be paid; but if the vestry would pass a resolution requesting them to relieve the three guardians, they would take the subject again into their consideration. A meeting has therefore been called and a resolution unanimously passed in favour of the suggested request. There the matter rests; but the meeting have also resolved that the guardians be empowered, in the event of Mr. Chapman adhering to his refusal to give up the field books, to have the accuracy of the maps tested by admeasurement on the ground. The mover said he had no doubt the plans were correct, and should have been very glad if Mr. Chapman would put an end to the dispute by giving up the books. The guardians are advised that if the plans be found to be inaccurate, Mr. Chapman must bear the expense of testing.

Miscellanea.

NEW MODE OF GENERATING STEAM. — An American gentleman, Mr. J. L. Linton, has lately visited Paris for the purpose of submitting to the French Government his new method of generating steam. Instead of the ordinary fuel, he uses petroleum oil; or, should that be wanting, ordinary coal oil; and as the machinery which he employs can be easily applied to the steam-engines in general use, he claims the merit of effecting a very considerable saving. The plan, according to *Galignani*, has been examined by a Government committee in Paris.

THE NEWCASTLE SCHOOL OF ART.—The award of prizes to the successful students at the Christmas Exhibition of this school has taken place in the school. The exhibition is considered a successful one. For architectural design there were two prizes of 1*l.* 10s. each, in money or books; one limited to architects or draughtsmen, the other for operatives or workmen. For the best design and drawings of plan, elevation and section of a villa two stories high, containing ten rooms, with bayed and dormer windows, and offices attached, not to cost more than 1,200*l.*, nor less than 1,000*l.*, Tudor style, with or without coloured perspective view. One of these prizes is the gift of a lady. It was given to Hubert Austin, of Newcastle. There was no competition for the workmen's prize.

DUNDEE CEMETERY PLANS.—The plans for the erections at the Eastern Cemetery for Dundee, prepared by the Town's Architect and Mr. Fulton, have been open to inspection in the Council Hall. Mr. Fulton's desig nconsists of a Gothic gateway, with a main carriage entrance, and two side entrances for foot passengers,—the houses on either side adjoining the gateway. The Town Architect's design is of a gateway which the local *Warder* says it cannot recognize as belonging to any of the regular orders of architecture, and seems better fitted for a park or a pleasure ground than a cemetery. The houses are apart from the gateway, and thrown back, so that they are partially hidden by the fence; and the front, it is said, does not present the same imposing appearance as that in Mr. Fulton's design.

THE SEWAGE QUESTION AT WEST HAM.—The outlet for the sewage is into the river Lea, at Bow Creek, by permission of the commissioners of that river; and when first permitted, it was understood by the West Ham Local Board of Health it would only be allowed for a temporary and not for a permanent period. Application has been made to the board for the purchase of the same; and the intended purchaser was in attendance at a committee of the local board of health; but the question was deferred, as the matter was not entered on the usual notice paper. It is computed the cost of the pumping-engine, and the other expenses incidental to the outfall works, amount to little if anything less than 600*l.* per annum, or 12*l.* per week; and, therefore, any arrangement that could be made for the disposal of the sewage would at least effect a considerable saving.

COTTAGE HOSPITAL FOR EAST GRINSTEAD.—The advantages which cottage hospitals afford, for the treatment of accidents and severe diseases in rural districts, being now universally acknowledged; and the want of some such place in the neighbourhood of Grinstead having been frequently experienced; it is proposed to open one near the East Grinstead Railway Station. This hospital, which will be conducted on the plan so successful at Cranley, is not intended to supersede the projected Infirmary, but to serve as a temporary substitute. A cottage on East Grinstead Common, enlarged so as to obtain a room 28 feet by 12 feet, with proportionate height, and other accommodation, adapted for the reception in all of seven patients, and situate close to the residence of Dr. Henry Rogers, who is willing to give his professional services gratuitously, is offered by that gentleman rent free, on condition that a sufficient amount is contributed to pay for the beds and other requisites. About 120*l.* will be required. The furniture and all other property purchased or presented will be vested in trustees to be appointed from the contributors. The common expenses for nurses, medicines, fuel, and lights, will be defrayed by voluntary subscriptions and donations; but patients, or their employers or friends, except in very special cases, will pay for their maintenance: the hospital will thus be partially self-supporting. Donations and subscriptions may be paid to "The Cottage Hospital Fund," at Messrs. Whitfeld, Molineux, & Whitfeld's, East Grinstead, or to Dr. Rogers, from whom further particulars may be obtained.

CEMENTATION OF STEEL.—An invention has recently been patented by Mr. A. A. Lamiable, of Paris, according to which he claims the application of wood divided into small parts, such as sawdust, the leaves of trees, and the envelopes of certain fruits for the cementation of the pieces of cast or forged iron to form steel suitable for the manufacture of cutlery, rails, tyres of wheels, and other articles.

EXTRAORDINARY DISCOVERY IN THE EAST RIDING.—At Langton a ploughman has laid bare a portion of tesselated pavement in a field belonging to the Langton estates. The Rev. C. B. Norcliffe, of Langton Hall, and other gentlemen, have made an examination of the site, which is on the top of an eminence near the village. The result so far, it is said, has been the discovery of a fine pavement of pure white chalk-stone, composed of tesseræ about 1½ inch cube, set in cement or mortar. About 30 or 40 yards of foundation were traced to a huge block of sandstone, squared and pierced as if for the reception of a column. The inference is, that this formed the base of one side of the entrance to the court-yard of a Roman villa, or the portico of a temple. In the village adjoining there is a well-marked Roman camp, and on the wold there are extensive earthworks.

LECTURE BY TURKISH SAVANS AT CONSTANTINOPLE.—The lecture on chemistry lately in course of bi-weekly delivery at the Dar-il-Fanoum, Constantinople, by Dervish Pasha, attracted large and enthusiastic audiences. The lecture-theatre is comfortably fitted up *à la Européenne*, and the lecturer was amply provided with instruments, diagrams, and materials for experiment, all at the expense of the Turkish Government. At the conclusion of the series, the lecturer was to be followed by Salih Effendi, late president of the Pera municipality, who will deliver a course on natural history; and will be in his turn succeeded by Edhem Pasha, who will discourse on geology. "Shades of Amurath and Bayazid!" exclaims the *Levant Herald*, "can all this be taking place within the very shadow of St. Sophia?" It well may, however, at an epoch when a New Zealander is editing his own *Gazette* in his own native isle.

THE OTTOMAN NATIONAL EXHIBITION.—The building and its belongings continue to advance steadily towards completion. The applications for space in the machinery annexe are now so numerous that the commission has decided on enlarging this portion of their scheme to 5,500 square archins (about 4,280 yards). Amongst the articles said to be *en route* from the Babylonian capital is an immense pearl, reported to weigh no less than 335 *muscals* (about 500 drachms!), and to be valued by its owner, one Seropé, an Armenian, at the proportionate sum of 20,000*l.* This very precious jewel is said to have been fished in Ottoman waters in the Persian Gulf, and is to be offered—in sale—first to the Sultan, and if declined by his Majesty at the above figure, to be taken to England in search of a purchaser. The prices of admission are now fixed at 3p. for the general public on five days of the week, 6p. on Tuesdays for Turkish ladies, who will be exclusively admitted to the building on that day, and 6p. for the public again on Fridays.

GLASGOW ART-UNION. — The subscription for the past year amounted to 3,849*l.* 6s. The report read at the distribution said,—"Following up the design indicated by the committee in the report for last year, photographic reproductions of three original paintings have been prepared, and are in course of distribution amongst the subscribers of 1862. The commission for these paintings were undertaken by Messrs. J. Noel Paton, R.S.A., J. E. Millais, A.R.A., and James Sant, A.R.A.; and the paintings themselves form the three first prizes to be drawn for on this occasion. The prizes for the subscribers of 1862, selected by the committee, or to be selected by the prizeholders themselves, will number in all 250, or a proportion of one to each fourteen shares subscribed for. The sum appropriated for these prizes is 1,380*l.*, which added to the cost of the photographs, makes 2,530*l.* of the subscriptions of the year expended directly on works of art, and the total sum so expended by the society since its formation in 1841, 89,090*l.* The prizes are as follows:—1. The three paintings, the photographic reproductions which form the presentation work, being in value 105*l.* each. 2. Fifty paintings or other works of art, the selection of which will be in the option of the prizeholders. 3. 197 minor prizes, the selection of the committee, of the aggregate value of 365*l.* For the year 1863 the committee have in contemplation to extend the principle so favourably inaugurated this year of substituting photographs for engravings."

ARCHITECTURAL INSTITUTE OF SCOTLAND.—At the annual general meeting of the Architectural Institute of Scotland, held in the hall of the Institute, on Monday, the 2nd, letters were read from the secretary of the Architectural Alliance, and from the committee of the Institute of Architects in Ireland. The report of the council of management on the Bill of the Edinburgh Water Company, as affecting new buildings, was brought forward; and a paper by Mr. William Miller read, entitled "Some Remarks on Edinburgh, and its Improvement."

ACCIDENTS.—An accident attended with loss of life has occurred by the fall of a building in the Caledonian-road. Messrs. Gatti, the ice merchants, were constructing a depôt for their ice, and had sunk a shaft of 42 feet, over which was a building of some extent. Workmen were busy with the roof, when some iron supports gave way, and the men were precipitated down the shaft. One man, named Porter, was killed by the fall, and several others were severely bruised.——A newly-constructed house, at Worcester, erected on the site of some old premises in Friar-street, have fallen, owing to the foundation giving way. The house is one of several in course of erection; and the workmen were engaged in sinking cellars for two houses and shops which are to front the street, when the end house of four in the yard fell, and the labourers employed narrowly escaped with their lives.

THE LIVERPOOL TIMBER TRADE. — Mr. E. Chaloner, in his Annual Circular, states that the imports from Canada and America have decreased, whilst those from the Baltic are more than for the preceding year. This decrease is principally accounted for by the limited consumption at home, through the dulness of trade in our manufacturing districts, consequent upon the protracted civil war in America, combined with high rates of freight ruling, especially in the latter portion of the year, when a large amount of tonnage was required to transport grain to this country from Canada and the North American ports, and for the immense imports of cotton from India and other countries. The import of fir logs from the Baltic is much larger than that of the previous year. Mr. Chaloner in the following table contrasts the tonnage employed in the timber trade of this port with our colonies and the Baltic during last year with that of the previous one:—

From the 22nd January, 1862, to the 27th January, 1863.			
Quebec	120	vessels,	116,479 tons.
St. John, N.B., &c...	190	,,	152,362 ,,
Baltic	72	,,	23,831 ,,
Total	386	,,	292,672
From the 23rd January, 1861, to the 22nd January, 1862.			
Quebec	142	vessels,	134,597 tons.
St. John, N.B., &c...	237	,,	189,446 ,,
Baltic	66	,,	21,401 ,,
Total	445	,,	345,444

LECTURE BY CARDINAL WISEMAN AT THE ROYAL INSTITUTION.—The usual meeting at the Royal Institution, last week, was crowded to overflowing at a lecture by Cardinal Wiseman, "On the Points of Contact between Science and Art." He considered the subject in its relations separately to painting, sculpture, and architecture, each of which department of art, he remarked, is intimately connected with the progress of science. The first representative man in whom science and art were combined in the greatest perfection was Leonardo da Vinci; for, though little is generally known of that great artist's scientific acquirements, he wrote thirteen folio volumes on matters relating to science, and he had brought that knowledge to bear in executing his works of art. The man of modern times who had done most to connect science with art was the late Prince Consort, whom Cardinal Wiseman eulogised in high terms, and mentioned the many successful endeavours which had been made by the Prince to promote science in connexion with art. The relation between Scripture and science was illustrated by reference to the elliptical curves of which the form of the human body is composed; and Dr. Wiseman pointed out an analogy between these elliptical curves and the orbits in which the planets revolve round the sun. The study of anatomy, also, had been of eminent service to the sculptor. The relation between architecture and science, he observed, is so intimate, that the operations of the architect are entirely founded on a knowledge of the principles of mathematics. To illustrate the importance of the application of science to architecture, the lecturer explained, in considerable detail, the manner in which the dome of St. Peter's at Rome had been repaired when in danger of falling. The lecture was an hour longer than usual.

WESTMINSTER PALACE HOTEL.—The report of the Westminster Palace Hotel Company, presented at the half-yearly meeting, stated the receipts for the six months to have been 18,408*l.*, and the expenditure 11,999*l.*, leaving a net profit of 6,409*l.*, of which the sum available for dividend, after paying debenture interest, &c., was 5,620*l.* A distribution was accordingly recommended at the rate of 8 per cent. per annum, and 420*l.* was carried forward.

THE RUINS OF BABYLON.—A letter from Bagdad, in the *Moniteur*, says:—"The excavations carried on among the ruins of Babylon, under the direction of the French consul at Bagdad, have resulted in some interesting discoveries. In the Nimroud Mound, which was visited by Mr. Layard, in 1840, were found four bas-reliefs of colossal dimensions, each sculptured on a large slab of stone, with allegorical figures. The greater part of these bas-reliefs bear long inscriptions in cuneiform characters, and are remarkable for their state of preservation. A certain number of other sculptures of smaller dimensions, representing scenes of Assyrian life or warlike episodes have also been discovered. These artistic treasures are on their way to France."

TO PREVENT THE ROTTING OF WOODEN POSTS AND PILES.—The following receipt has been sent to the Société d'Encouragement, Paris. The paint, it is said, or varnish, has the hardness of stone, resists damp, and is very cheap. It has been in use for the last five years. 50 parts of resin, 40 parts of finely-powdered chalk, about 300 parts of fine hard sand, 4 parts of linseed oil, 1 part of red oxide of lead, and 1 part of sulphuric acid, are mixed together. The resin, chalk, sand, and linseed oil are heated together in an iron boiler: the red lead and the sulphuric acid are then added. They are carefully mixed, and the composition is applied while hot. If it be not found sufficiently fluid, it may be made thinner by adding linseed oil. This paint, when cold and dry, forms a varnish of the hardness of stone.

SANITARY CONDITION OF THE CITY OF LONDON. Dr. Letheby, the medical officer to the City Sewers Commission, has presented his annual report on the sanitary condition of the City. It states that "in the course of the year which has expired there were 3,046 births, 2,726 deaths, and 1,540 marriages in the city of London. These occurred among a population of 114,472 persons. The births, therefore, have been in proportion of 26·4 for every 1,000 of the inhabitants; the deaths of 23·8; and the marriages of 13·4. In all England the average birth-rate is 33·1 per 1,000 of the population, the death-rate 22·3, and the marriage-rate 8·2." The distribution of the deaths has been very unequal: in the eastern and western unions the general proportions have been at the rate of 25·8 per 1,000 of the population, whereas in the central district it has been but 20·6. The cause of this has been, not so much the difference in the character of the population, as the density of it. In the former districts the number of persons upon an acre ranges from 200 to 266, whereas in the latter the number is but 105. The infant mortality in the City is unquestionably very large. It can hardly be estimated by the proportion of children's deaths to the total mortality, because the proportion of children in the City population is comparatively small, but it may be seen by observing the number of children that die before they are a year old. Last year there were 3,046 births in the City, and there were 475 deaths of infants that had not reached the first year of their age. In the course of the last ten years the annual proportion of births had been 3,412, and the annual proportion of infant deaths has been 556. This is at the rate of 16 per cent., or, in other words, 1 in 6 of all the children born in the City die before they are a year old. In the rest of London the proportion is about 15 per cent., and in all England it is only 14 per cent., or about 1 in 7. The causes of this are chiefly to be found in the density of the population, and the bad condition of the homes of the poor. The means of storing water and the appliances for distributing it are so defective in the poor localities of the City that there are constant complaints of a deficiency of water. Indeed, the water is on for so short a time in many districts that the poor have but little opportunity for collecting it. From a quarter of an hour to an hour is too short a time for filling butts and cisterns; and, therefore, during the greater part of every day they are without water: on Sundays they are nearly always without it. This is a subject we have ere now brought under notice. It would be a great boon if the daily supply were continued for an hour instead of half an hour, and if there were a like supply on Sundays.

M'INTOSH *versus* THE GREAT WESTERN RAILWAY.—In the cause of Mr. M'Intosh, the contractor, against the Great Western Railway Company, which has been in litigation for several years, the chief clerk of the Vice-Chancellor Stuart, before whom the accounts have been, has now terminated his investigation; and it is understood that the amount of the plaintiff's claim is found to be, in round numbers, 80,000*l.*, with interest from the opening of the line, in 1838 or 1840. The costs of the suit will probably amount to a further sum of 20,000*l.* There is another suit of a similar character between the same parties, the accounts in which have not yet been entered on.

CHATHAM.—In order to provide healthful recreation for the troops stationed at this garrison, the War-office authorities have decided upon the erection of an extensive gymnasium for their use. The spot selected as the site of the building is that portion of the inner lines nearest to the drawbridge, leading to New Brompton. The contract of Mr. Matthews, of Dover, for 3,500*l.*, has been accepted.——The foundation of the memorial arch erected about eighteen months ago at the eastern end of the parade ground, Brompton Barracks, to the memory of the Royal Engineers who fell during the Crimean war, has, according to the *Morning Post*, been gradually giving way for some time past, and the structure is now in such a state as to demand immediate steps for its preservation.

ST. THOMAS'S HOSPITAL.—A Surrey magistrate, an old supporter of the London Hospital, offers to "give" a freehold site of 73 acres for the new Hospital of Bethlehem, on condition, first, that St. Thomas's Hospital be built on the site of Bethlehem; and, secondly, that the sum of 21,000*l.* (20,000 guineas) be added to the capital stock of the London Hospital, in the Whitechapel-road. The estate (which is freehold, land-tax redeemed), occupies the southern slope of one of the hills in Surrey, is eight miles from the City and seven from the West-end, and is said to be worth at least 300*l.* per acre. After all, therefore, the offer, so far as St. Thomas's is concerned, is to *sell* a site.

LECTURE ON ARCHITECTURE AT LEEK.—A lecture, one of a series promoted by the vicar, was lately given by Mr. R. Edgar, of London, architect, in the national school at Leek. His subject was, "Ecclesiastical Architecture," which he treated in its Gothic branch only; showing how our English Gothic had grown up a school out of the character and necessities of our northern climate; and tracing its rise and growth to its culmination in the period of the Perpendicular Gothic, and its decline in the sixteenth and seventeenth centuries. He also gave some hints on the spirit in which he considered that a revival should be attempted. The lecture was illustrated by a number of sketches, many of which Mr. Edgar drew before the audience.

THE WEDGWOOD STATUE.—A correspondent of the *Staffordshire Advertiser* says:—I was passing through the Railway-square at Stoke the other day, when what I suppose to be the pedestal of the long-looked-for Wedgwood-in-bronze attracted my attention. On closely approaching the work I was not a little astonished to see that the material employed is of no more durable a nature than *red sandstone*..... Perhaps the eminent sculptor wants the particular colour for the work: need he be reminded that there is abundance of granite that will give it him? Perhaps the amount to be paid for the work will not allow of the use of this material. If not, it is hard to believe that the subscribers will on this occasion "spoil the ship for a ha'porth of tar."

TRANSMISSION OF LETTERS.—A curious project has been set on foot by M. Faget, of Bordeaux. He proposes to erect, at a distance of about 1,000 mètres from the coasts of Calais and Dover, two strong edifices of masonry, containing steam-engines of sufficient power, by means of which two immense wheels, 25 mètres each in diameter, are to be made to turn forty times a minute. By this rotation a series of wires, forming a gigantic strap extending across the Channel, is to be coiled round the wheel at one end, say at Dover, and uncoiled at the other, Calais, and conversely. To this strap india-rubber letter-bags are to be attached, which are thus to be conveyed across the Channel at the rate of 3,000 mètres per minute; so that within the space of twelve minutes the letters and despatches from one country may be landed on the other. The length alone of the strap is sufficient to cause its submersion, and the transmission might be effected in any weather. But what of the navigation of the Channel, especially on the coasts?

DAMAGE TO CHRIST CHURCH, BATH.—The north-east pinnacle of the tower of Christ Church, Bath, has been blown down by the violence of the wind; and, falling through the roof, has destroyed a portion of the flooring of the gallery; falling into the body of the church. The organ had a narrow escape, the moulding of one part of the case being carried away by the falling stone.

IPSWICH.—The new weir, which has been constructed at the expense of the Ipswich corporation, with the design of preventing the flooding of the Marshes belonging to them, is now available for carrying off from the Gipping the storm water, &c., which hitherto, from want of a legitimate mode of escape, has poured over the meadows and marsh lands adjoining. The weir is formed on the south bank of the Gipping, just at the last bend the river takes before it is crossed by Handford Bridge, from which bridge the weir is about 250 yards distant. The weir is the edge of a "tumbling bay," and presents a surface of 140 feet to the river. To form this the earth was excavated to a depth of 7 feet, and a gradual hollowed slope formed of concrete, over which is brickwork 18 inches thick in the weakest part, and at the sides 3 feet in thickness; its shape resembling a long spoon with a blunt rounded point, the end which should join the handle being cut off square. The edge is formed of blocks of "Roach Portland" stone 3 feet deep and 2 feet in thickness, over which the water will run in case of any rise in the river. The tumbling bay is 62 feet in length and 42 feet wide. From hence the water runs into a channel, for a distance of 150 feet filled in with concrete, communicating with the old channel, which has been enlarged, leading into the tidal river through the Seven Arches. For some distance the banks of the river have been raised. The works were according to a plan by Mr. W. H. Holland, C.E., of London, and have been executed under the direction of Mr. Monson, engineer, by Mr. R. Worswick, whose contract was for 897*l.*; and the extras will, probably, bring the cost of the works to something over 1,000*l.*

TENDERS.

For alterations and additions to Beddington House, Surrey, for the Rev. A. H. Bridges. Mr. Joseph Clarke, architect:—

Conder (accepted)	£5,296 0 0

For the oak seats, East Peckham Church, Kent. Mr. Joseph Clarke, architect.

C. W. & J. Bowley (accepted)	£418 0 0

For building the first portion of the Hampden Gurney Memorial Schools, Adam-mews, Berkeley-street, W. Mr. Joseph Clarke, architect:—

Aldred & Doulton	£3,256 0 0
Ashby & Son	3,256 0 0
Foster	3,220 0 0
Conder	3,171 0 0
Gammon	3,065 0 0
Key & Head	3,044 0 0
Norton	2,948 14 0
Lawrence & Son	2,930 0 0
Piper & Wheeler	2,897 0 0
I'Anson	2,844 0 0
Trollop & Son	2,826 13 0
Brown & Robinson	2,800 0 0
Bowley, Brothers	2,700 0 0
Carr	2,688 0 0

For new warehouse-buildings in Long-lane, Bermondsey, for Messrs. Gibbs & Son. Mr. Geo. Elkington, architect. Quantities supplied by Mr. Herring:—

Nixon	£3,260 0 0
Lugg	3,115 0 0
Wills	2,764 0 0
Coleman	2,730 0 0
Peake	2,700 0 0
Thompson	2,692 0 0
Wood & Munn	2,640 0 0
Kent	2,626 0 0
Wells	2,599 0 0
Preston (accepted)	2,532 0 0

For building two villa residences at Hackney, for Mr. Kelsey. Mr. Chester Cheston, architect:—

Goodwin	£3,668 4 0
George	3,377 0 0
Flint	3,256 0 0
Stevenson	3,057 0 0
Perry	2,799 0 0
Bond	2,740 0 0
Aldous	2,720 0 0
James & Ashton	2,693 0 0
Maeers	2,656 0 0
East	2,470 0 0
Cubitt	2,324 0 0

For fitting up public house at Kingsland. Mr. Cæsar A. Long, architect:—

	Bars, Fittings, &c.	Counter.	Gas Fittings.
Skinner, Brothers	£310 0 0		
Lidbetter	232 0 0		
Scott	231 10 0		
Saunders	....	£89 10 0	
Gerardin & Watson	....	86 5 0	
Warne	....	80 0 0	
Bird	....	....	£37 0 0